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NEW YORK SHELL CLUB NOTES No.98 Jan. 1964

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The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY **

NEXT MEETING: SUNDAY, FEBRUARY 9th, 1964, at 2:00 P. M.

PROGRAM: EXPLORING ALONG THE MAINE COAST
by Mathilde Weingartner (with color slides)
REPORTS OF THE BRITISH SNAIL WATCHERS' SOCIETY
by Marian Schroth
SHELL-OF-THE-MONTH (to be announced)
DREDGING IN THE EAST GULF OF MEXICO (Repeat)
by William E. Old, Jr. (color slides)
TOURING IN SINGAPORE AND BANGKOK
by Dr. Joseph L. Abramson (color slides)

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR. Notify Corres. Sec'y of any change in address.

** EXCEPTION:
We will not meet at the Museum in April, 1964. Instead, we will hold an auction of shells and related items at the Broadway Dance Studio, 31-08 Broadway, Astoria, Queens, New York. (Details below.)

A CORRECTION RE: THE PALM BEACH COUNTY SHELL CLUB SHOW

Mrs. Ward Brown advises us that the correct dates for The Palm Beach County Shell Club Show are FEBRUARY 26th, 27th, 28th and 29th. The show will be held at the Palm Coast Plaza in West Palm Beach, Florida, and will be open on the above dates from 11:00 A. M. to 10:00 P. M.

NEW YORK SHELL CLUB AUCTION APRIL 12th

Plans have been made, and we hope to make this forthcoming auction the best ever arranged by the New York Shell Club. Remembering our auction two years ago, this will take some doing, so--how about it? It depends on you, you know, as all items are donated. Solicited are extras in your collections, literature, anything to do with shells -- Bring them

forth and to the next two meetings, where they will be gathered in and carefully guarded until they are tastefully displayed on the long tables of the auction room. Parcels may be mailed to President William E. Old.

We have a most worthy goal for this auction: to finance a display of the shells of the State of New York (land, fresh water, marine) to be set up in the American Museum of Natural History. The cost has been quoted as $500, and we have voted to donate the proceeds of the auction to that amount for this project.

The auction will be held in the spacious quarters of the Broadway Dance Studio, 31-08 Broadway, Astoria, by courtesy of our members Dorothy and Norman Jensen. The studio is easily reached -- it is on the corner of 31st Street and Broadway (second floor) at the Broadway stop of the BMT-ASTORIA train.

There will be rare shells, glamorous shells, uncommon shells, and a bargain table for the youngsters 9 to 90. Among the items already received:

Cypraea nigropunctata from the Galapagos
Murex cornutus from Gambia, West Africa
Cypraea pulchra from Arabia
Nautilus macromphalus from New Caledonia
Nautilus scrobiculatus from New Ireland
Two "Sailor's Valentines"
Polished turbos, corals, literature

Those with an interest in restoring antiques will be intrigued with the two "Sailor's Valentines" that Mrs. Travers has donated. Though damaged and dusty, all the pieces of the octagons are there, the glasses are intact, most of the shells (including the "roses") are with them. One is mahogany, the other was gilded, and both are 150 to 160 years old.

The auction will begin promptly at 1:00 P. M. Come anytime after 12:00 noon for a chance to inspect the wares (or make a last-minute donation) before the bidding starts. As it will be a long afternoon you may want to bring a sandwich -- we'll serve coffee and cake. Several ladies have volunteered to bake cakes and cookies, and Anne Taxson, in charge of refreshments, will happily accept their pledges at the next meeting.

A FURTHER NOTE ON LITTORINA IRRORATA Say

by M. K. Jacobson

In 1844 Dr. DeKay in his "New York Mollusca" reports that he found Littorina irrorata "Common in salt meadows. I have seen them in Harlem, in great numbers, clinging to the stems of salt grass." (p. 106) From the description and the illustration (plate 6, fig. 112) there is no doubt that his determination was accurate.

Littorina littorea was first seen in the New York area in the 1880's. Dr. Clench in "Johnsonia" (No. 7, p. 5) states that it was found by Prime at Lloyd's Neck, Long Island, in 1881, at the Narrows of Staten Island in 1888, the first live one being found by W. T. Davis in 1893.

There is then no doubt that as late as 1844 irrorata was common in New York, whereas littorea did not show up until much later. (DeKay in 1844 makes no mention of it in his book.)

Was this failure to maintain itself due to the chilling of the local waters? Dr. Clench writes: "The dying out of L. irrorata at the northern

edge of its range may be due to a change in the climate for the colder, for which there is a certain amount of evidence." (ib. p.7) To answer this question, two facts should be born in mind. First, that between 1844 and 1881 there is no record of irrorata appearing locally in any numbers. Thus as early as 1859 Sanderson Smith makes no mention of it in his report on the mollusks of Peconic and Gardiner's Bay, nor does it appear in any of the lists between 1862 and 1870. Hence it seems to have disappeared long before littorea showed up, although the latter is recorded from New Haven in 1869 by Perkins. The other fact is that the recent find by Mr. Colantonio of a thriving irrorata colony at Manasquan, New Jersey (NOTES #96:4), points to a comeback for this species toward its former range.

Is there any evidence that the local waters are growing warmer? If so, perhaps we can look forward to a return of some species not recently recorded from this area.

(Here is the bulk of an article by Walter Lucas, Special Correspondent, as it appeared in the Christian Science Monitor Sept. 20, 1963:)

THOSE PERSISTENT SNAILS !

The Mediterranean snails, of which there are 70 different known varieties, have a subtle resistance to extermination when they infest cargoes leaving the port of Leghorn for the United States. Aside from this they run through acres of crops destroying whole fields of vegetation overnight. This year especially, when there has been more summer rain than usual, they have been rampant and done considerable damage to vegetable and other crops in many parts of Italy.

The entomological section of SETAF's Eighth Logistical Command has been given the mission of doing battle against the snail and preventing its invasion of the United States. It has been found that shipping from Mediterranean ports has transported snails across the ocean which have inserted themselves in cargoes, survived the journey, landed in America, flourished and multiplied, and presented a serious agricultural threat which could become as menacing as that of the Japanese beetle. Even costly fumigation of ships and cargoes has not succeeded in entirely destroying the invaders.

Some people probably do not realize that the United States Army is in the entomological business in liaison with the University of Pisa and the Italian Government...The Eighth Logistical Command, in fact, has an entomological laboratory at Leghorn, the only such laboratory in Europe, which monitors and controls the war against pests for the whole area of SETAF command.

Recently the directive went out to the entomological section of the Eighth Logistical Command: "Bring them back alive"--this meant to catch the snail rather than exterminate it. At first count this offensive has captured 5,000 snails of five different varieties; these prisoners have been shipped back to the Quarantine Treatment Laboratory of the United States Agricultural Department at Hoboken, N. J. There natural scientists will try experimenting with these snails to find some effective poison that will destroy them.

...Under the present state of affairs preventive measures include the destruction of all vegetation around storage areas in the spring so as to deprive the young snail of its food, and then, as a further precaution,

the provision of a snail-free area. This involves surrounding the cargoes with a 40-foot ribbon of asphalt. Tests have shown that even the most sturdy snail cannot make 40 feet across asphalt.

According to Capt. James W. Blair, the Port Engineer of Leghorn, there is a 90 percent kill of snails with present methods at the port. But what about that unaccounted 10 percent that slips through the present defensive network? This could still provide a threat to the United States agriculture. The battle against snails at Leghorn continues, but it is now up to the Agricultural Department scientists at Hoboken to achieve total victory.

* * *

(This is an informative article, but a few clarifying comments might be made. First, it never states that several species of "dangerous" snails are regularly imported and sold in Italian markets in New York, for instance, for use on the table. (See Jacobson and Emerson, "Shells of the New York City Area, p. 106) They have escaped in some areas in the south, but have not proved to be as formidable a danger as the article seems to indicate. Even in California, where Theba pisana and Helix aspersa are well established, they are rather an agricultural nuisance than a real danger. There is a colony of Helix pomatia in Michigan which is interesting rather than alarming. New Orleans and other southern cities have been invaded by colonies of several species of European snails, but since they have not made headlines they have not caused undue panic.

In the countries of the Mediterranean, where they really flourish, they have been converted from an agricultural pest to an agricultural benefit. Vineyard owners, for example, can harvest two crops, grapes and snails, from a single field, and frequently there is little difference in the money each brings in.

The real dangerous land snail, Achatina fulica, comes from Africa and the Pacific and not from Europe. In all probability it was against this mollusk that the U. S. snail exclusion act was passed. Even in this case, as readers of Dr. Albert Mead's book on the subject (cf. NOTES #90) will learn, the danger is not one of the greatest--or even moderately greatest--facing mankind.

To sum up: Our advice is to enjoy the snail by sight or taste--especially in New York--and worry about real dangers like the atom bomb or the melting Greenland Ice Cap. . . MKJ)

STROMBUS WITH A GLOW ON

International Oceanographic Foundation's "Sea Secrets", Vol. 7, #11, Dec., 1963, yields this item re: Strombus gigas:

Question: I brought home a number of pink conchs which I collected at a local beach and, after cleaning and dicing them, placed them in a bowl of heavily salted water to soak overnight. During the evening, I entered the kitchen and was surprised to see the whole bowl of conch glowing with a very pronounced heavy yellow glow....I have gathered and prepared conchs for years and never had this experience before. Can you tell me what might have caused this condition? J.A.G., Key West, Fla.

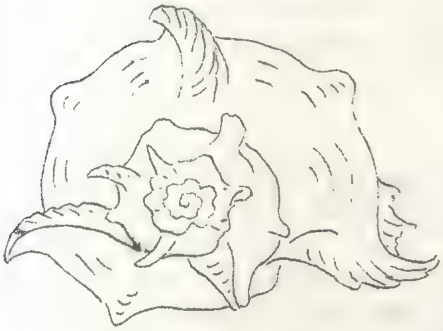
Answer: There are many marine microorganisms which luminesce under suitable conditions. It appears that the pink conchs which you collected may have been taken from an area containing luminescent microorganisms. It is doubtful if these would have any effect on the edibility of the conch flesh or upon its nutritional value.

REMARKS ON MUREX PONDEROSUM SOWERBY 1880

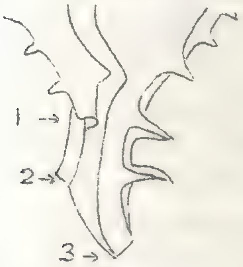
by Anthony D'Attilio

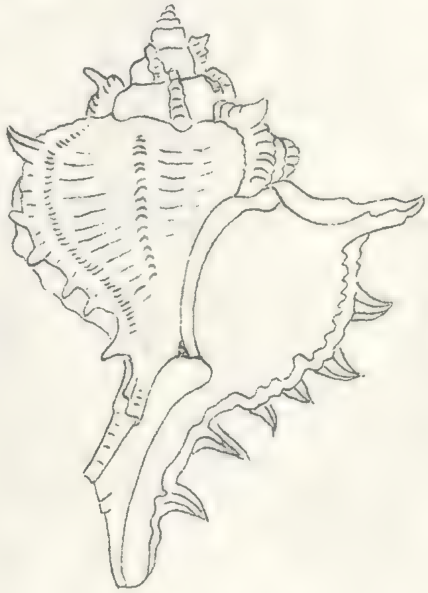
(1880 Sowerby G. B., Thesaurus Conch. Murex ponderosum ("Chemnitz")

Murex ponderosum Sowerby has been generally cited as the heavy form of Murex anguliferus Lamarck, a species found in the North Indian Ocean. It has also been suggested that ponderosum might be synonymous with Murex spinosus A. Adams 1851 (see N.Y.S.C. NOTES No. 96 for a figure of this species). In studying this question it was discovered that there are examples of anguliferus that differ from the better known form in several respects. In a large series examined in the collection of the American Museum of Natural History, the major number of specimens possess three varices with a large, midplaced, intervarical node. The shell is generally white with a pink columella and pink on the apertural edge. Also, these shells are comparatively light in weight and structure. A proportionately few specimens were isolated on the following characters: the shells are of heavy, solid structure; have mostly four varices; the intervarical node is predominately over to one side, following very close on to the varix. These specimens are otherwise very similar to anguliferus in color, spine development, and general shell character. Most specimens with locality data (when present) indicate Ceylon as the point of origin. Although data on old collections needs verification, it is known that this species does occur in this locality. A particularly large, fine specimen (ex Wm. E. Old Collection) of the heavy, four variced form was labeled "Red Sea".

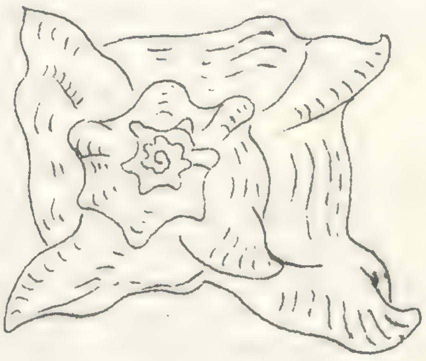


End view of typical form with 3 varices

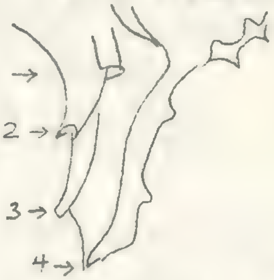




Murex anguliferus Lamarck



End view of heavy form with 4 varices



CONCLUSION

As this heavy, four varicied variant of anguliferus appears to be of genetic origin it remains to be shown if this form occurs (a) sporadically

among all breeding populations or (b) if it is restricted to a particular geographic area of the range. Should eventual studies prove (a) to be correct, then the form would have no taxonomic significance. However, should it be shown that this form is geographically isolated, then it may deserve subspecific recognition.

Another example of such a taxonomic puzzle is apparent in Murex pomum Gmelin of the Caribbean. In JOHNSONIA, Vol. 1, No. 17, p. 26, Clench and Farfante 1945 refer to this species as a three varicied Murex. Abbott 1958, MARINE MOLLUSKS OF GRAND CAYMAN ISLAND, p. 61, cites Murex pomum, three to four varices. I am not aware that this variation in Murex pomum has ever been worked out on a geographical basis to determine which of the two solutions suggested above for anguliferus may perhaps be applicable to pomum.

(Ed. Note: Never have we seen so many eyes "bug out" as at the January meeting when Ethelyn Woodlock held up her rare specimen for a SHELL-OF-THE-MONTH presentation. While most of us were still exclaiming with surprise, Nick Katsaras offered to buy it on the spot. It was a new species:)

CONUS GLORIA MARIS WOODBLOCKI Woodlocki

by Ethelyn Woodlock

A replica of the Conus gloria maris in the Museum collection was carved from a block of sugar pine by the artist and member, Ethelyn Woodlock. Six sketches were made from the real shell at the Museum--four sides, top and bottom views--and color notes made in casein, which is a water-base paint. A huge saw was used to cut off the many corners of the 2"x2"x6" block, then it was roughed in with rasps and chisels. The aperture was dug in with a penknife and chisel, then the exterior was worked down slowly to proper size. Emery boards, fine files and sandpaper were used for the final sculpting and it was ready for creamy white casein. The thousands of minute tent marks were painted with tiny brushes worn down to a few remaining hairs. Two coats of Valspar varnish rubbed with pumice and water gave the right gleam for the glorious gloria!!

Another, larger (five inch) reproduction was started and taken to the Museum for the final shaping with the real gloria close at hand. Growth marks were dug in to make it more realistic.

After intermission President Bill Old produced the real gloria maris, and the two shells side by side looked like twins. Bill had shown the made-by-hand shell around the room and one woman asked: "Do you think she would give it to us? It may be two years before we get around to making one." Bill's reply was: "I DOUBT it!"

So - - if only there could have been a movie camera clicking when the shell was presented to Bill for the Museum and he asked: "ARE YOU SERIOUS?", the expression on his face could have been preserved for posterity.

The American Museum of Natural History will use this model Conus in their public display. A real Conus gloria maris was stolen from a case in 1950 and they would never again exhibit such a valuable real shell. So the Woodlocki gloria will not be tucked away in a filing cabinet for but few to see.

. . . . An artist with a national reputation -- painting seashells !!
. . . . Oh, me! What next? Maybe a Voluta bednalli?

ON THE PERIOSTRACUM OF SPISULA SOLIDISSIMA IN ROCKAWAY

by M. K. Jacobson

Most mature specimens of this species found in Rockaway lose all signs of the periostracum (or epidermis, as it is sometimes incorrectly called). This is due to the abrasive action of the rough granitic sands in which the animals burrow and live. But on some days of quiet surf in early autumn many smaller specimens are thrown on the beach with perfect periostracums (periostraca?) in place. Even here, however, the upper portion of the shell is free of this layer, a sign that the periostracum-covered portion was developed during the summer, and that the free portion lay over dormant from last winter, being gently deprived of its cover by the abrading sand.

The periostracum, whose function is to protect the calcium of the shell from the acids in the surrounding waters, varies greatly in different genera. In Spisula it is a very thin, light tobacco-colored layer that, in the living shell, extends slightly beyond the shell edge. Apparently its outer edge is formed before the underlying shell matter is deposited. The periostracum, according to Pelseneer (in Lankaster, "Treatise on Zoology", part V, p. 4, 1906) is secreted by the pallial fold at the edge of the mantle, whereas the shell itself is secreted by the whole surface of the mantle. That is, the thickened mantle edge deposits the shell at the growing edge, and the entire mantle works to thicken the shell from the inside.

The periostracum of S. solidissima is smooth except for slight ridges that are raised here and there by the underlying growth lines. However, at the posterior portion of the shell, below the so-called posterior ridge, the periostracum is gathered up sharply into heavy, deep folds, presenting, under slight magnification, a striking, irregularly imbricated appearance. (To tell the posterior from the anterior portions of a bivalve, consult Jacobson and Emerson, "Shells of the New York City Area", p. 72).

Above I stated that the periostracum extends slightly beyond the shell margin. This is not always true. I am looking at a dead valve which has pasted to its inner margin, like a bit of dried seaweed, an irregular fold of periostracum that, at its greatest width, measures 6mm, almost ¼ inch. The valve itself is 2¼ inches high.

Most shells are handsomer when the periostracum is removed, as Conus, for example. But in the case of our surf clam, a specimen with the periostracum intact presents a far more pleasing appearance than one naked of this cover.

While I'm at it, I might as well make mention of another feature that should be present in perfect cabinet specimens of this bivalve, but is more often missing. This is the very fragile, V-shaped cardinal tooth. J. C. DeKay writing about this in 1844 ("New York Fauna - Mollusca", p. 229) states: "...the v tooth is very delicate, and adhering to a very small base, so that it is usually broken off in the cartilage." Unless the valves are separated with extreme care, this tooth is broken off. I have seen few cabinet specimens that retain it.

Spisula: from the Latin "spissus", meaning thick, compact.
solidissima: from the Latin "solidus", superlative suffix "issima"--very strong and solid. (Poirier 1954)

CAPTURING LIVE MOLLUSKS ON COLOR SLIDES

by George Raeihle

The collection of slides shown at the January meeting were taken over a period of several years. There were slides of our Long Island mollusks as well as Florida species, and a few interesting non-molluscan marine subjects were included. Many of the subjects were photographed in their natural environment, on location. Others were photographed in various jars, dishes, trays and assorted containers when the aquarium was not available.

Some of the pictures taken on location illustrated the natural camouflage of the mollusk: Nudibranchs practically invisible when on the rough coral, the Strombus' silt covered shell blending with the sand so that it could be distinguished only by its shape, and the Chiton seeming a part of the rock. With few exceptions the camera is with me wherever I go in the field. At times it becomes burdensome, but when something interesting is seen, and captured on film, it is worth the trouble.

The slides shown brought to the audience another aspect of the "shell game" by showing close-ups of living mollusks with their mantles extended, feeding, crawling, etc. When shells are collected the animals withdraw, and only when left undisturbed in water from their own environment will they emerge and move about. The magnification on the screen which was accomplished by close-up photography enabled the viewers to see details as though observed through a magnifying glass.

Space prohibits listing all the species shown, but of particular interest were slides of Lunatia heros feeding, Haminoea solitaria and its egg cases, Lunatia triseriata carrying a small mussel wrapped in its foot before taking it under the sand to feed, Cyphoma mcgintyi with its mantle up while clinging to sea whip, Natica canrena fully extended, Aplysia dactylomela (the sea hare) exuding purple dye, Melongena bicolor feeding, Busycon carica opening a mussel with the edge of its shell, the spectacular Lima, the Nudibranch "ballet", and others which many collectors have not had the opportunity to observe.

The hour's presentation consisted of 230 slides, with studies of about 50 subjects and views of the areas in which they were found.

THE NEW YORK SHELL CLUB WELCOMES THESE NEW MEMBERS:

Mr. George Colantonio, Jr.
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Brooklyn, New York 11238

Miss Angela Savino
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New Hyde Park, New York

Mrs. Sylvia Waishau
3560 Rochambeau Avenue
Bronx, New York 10467

Mr. David Baxter
c/o Mrs. Fleming
349 West 85th Street
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Corrections for addresses given in NOTES #95 and #97:

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NEW YORK SHELL CLUB NOTES No. 99 Feb. 1964

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NEXT MEETING: SUNDAY, MARCH 8th, 1964, at 2:00 P. M.

PROGRAM: COLLECTING SHELLS IN CHILE, by Grace G. Eddison
THE GENUS GEMMA IN NEW YORK, by M. K. Jacobson
SHELL-OF-THE-MONTH, TIBIA MARTINI, by Anthony D'Attilio

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** EXCEPTION: We will NOT meet at the Museum in April, 1964. Instead, the Club will hold an auction on other premises:

NEW YORK SHELL CLUB AUCTION APRIL 12th

Our members Dorothy and Norman Jensen have generously donated the use of their BROADWAY DANCE STUDIO, 31-08 BROADWAY, ASTORIA, LONG ISLAND, for our Club Auction April 12th. Only 20 minutes from Times Square, the location is very conveniently reached by B. M. T. subway, ASTORIA line, to the BROADWAY stop, which is the 3rd stop beyond Queensboro Plaza. (Transfer from the I. R. T. line to the B. M. T. ASTORIA train may be made at Queensboro Plaza. The nearest station on the Independent Line is the local (GG) stop at Steinway Street and Broadway. From this point you may either take a bus or walk the 8 blocks up Broadway to 31st Street.) The studio is on the second floor of the Household Finance Building (HFC), corner of 31st Street and Broadway, which you will see as you exit from the B. M. T. station at BROADWAY. Our New York Shell Club flag will be displayed at the entrance of the building.

For those who are driving: Queensboro Bridge to Northern Blvd. to 31st Street, left on 31st Street (under the El) to Broadway. From Long Island: A look at your map and you will see that Queens Blvd., Roosevelt Ave. and Northern Blvd. all intersect Broadway. Grand Central Parkway to the last exit before the Triboro Bridge, around Astoria Blvd. and 31st Street, is also convenient. CHECK YOUR MAP and you'll have no trouble at all. How-

ever, if when the time comes you find you need some last minute directions, you may telephone the studio, AS.4-1503.

Please make note of these directions. We are giving them to you in this issue as our NOTES are too often delayed in the mail, and your March issue may or may not reach you in time.

* * *

What will there be at our auction? Cassis, Conus, Cypraea, Mitra, Murex, Strombus, Voluta, etc. etc. -- we just can't name them all. There will be rare shells such as a specialist will want to complete a series, there will be exotics, there will be glamorous ones. There will be some large corals that can only be described as fantastic. There will be some off-beats such as the Watering-pot Shell (the gastropod bivalve) and the Glass Sponge (Euplectella speciosa). Whether you want the gorgeous red Volute from the Philippines (Voluta aulica) or something as common as a clam, our Club auction aims to please. There will be shell jewelry, too -- some very attractive pieces have been donated. There'll be bargain tables for your pleasure and excitement during those periods before the auction gets under way and at intermission -- they'll be loaded with shells and sundry items such as glass-topped boxes, specimen trays, etc., with prices from ten cents up. And for gratification of the inner man, coffee and homemade cak will be served during intermission.

As you know, our goal is the $500.00 required to finance an exhibit of New York shells in our American Museum of Natural History. It will take the sum of many items to reach this amount. So please won't you look now through your collections, through your literature, and bring or send those several spares as well as those specimens that no longer hold your interest? We'll need them all -- the rare and not so rare, the literature and other shell-related items. You may bring them to the March meeting or send them to President Bill Old.

PUBLICATIONS:

THE JOURNALS OF THE MALACOLOGICAL SOCIETY OF AUSTRALIA

More of us should be acquainted with the annual journals of the Malacological Society of Australia, whether our interest is purely conchological -- the study of the shell -- or includes malacology, which is the study of the mollusk and its shell. Surprisingly, many shell collectors are not aware of the benefits of malacological studies in connection with their hobby. These fine journals from Australia are professional in stature, but still well within the scope of the average interested shell collector.

Journal No. 7, published in December, 1963, is at hand. It is a 5½"x7½" printed booklet of 72 pages containing eleven well illustrated articles. The illustrations consist of black and white photographic reproductions, one color plate of Volutidae, and black and white line drawings. Several new species (Voluta among them) are described, and other articles report valuable observations of species that relate to our own. E. Alison Kay's notes on the anatomy of Cypraea aurantium and other cowries are also in this issue.

Each number of the Journal is priced at 16/ Australian, or $1.80 U. S. There is a special rate for the complete set of seven journals. A single number or the set of seven may be obtained from the Hon. Secretary of the Society, Mrs. D. I. Hartley, 351 Glenferrie Road, Malvern, S. E. 4, Victoria, Australia.

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ANNUAL ELECTION FEBRUARY 9th

After praising the work of the officers incumbent during the past year, the nominating committee offered the same slate for the coming year. The members present joined in unanimous vote to reelect them and gave hearty applause to each officer of the hard-working staff.

MARY ABBOTT

Mary Abbott, wife of Dr. R. Tucker Abbott, died suddenly on January 28th. Our deepest sympathy is with Dr. Abbott and their three children.

ON RECORD SIZES OF PLACOPECTEN MAGELLANICUS

Some of you may have seen the item in the New York Times about a 7" scallop, which "appeared to be the granddaddy of all scallops", being brought in from George's Banks last November. Arthur Merrill, who is with U. S. Fish and Wildlife, informs us that scallops over 7" have been taken from Cape Cod Bay, and that there is a specimen over 8" at the laboratory at Boothbay Harbor, Maine. Abbott in his "American Seashells" gives the size as ranging from 5 to 8", while Jacobson and Emerson in "Shells of the New York City Area" note that they are 5 to 6" in diameter -- which latter size range encompasses all those we have seen. Mr. Merrill continues: "The largest sea scallop ever recorded, as indicated by the literature (Norton, A. H. 1931. 'The Nautilus' 44(3): 99-100), measured 230 mm. in length. This is about a nine inch scallop!" A patriarch, indeed!

MIKIMOTO's PEARLS

At our December and February meetings Dr. J. L. Abramson gave us a color slide travelogue of his recent tour to the Orient. Among the slides was a series on the famous Mikimoto cultured pearl industry. Teen-aged girls do the diving for the oysters used as hosts. These Amas (daughters of the sea) are trained from childhood and can hold their breath a full minute. Pictures showed them at work: diving, then clinging to the wooden tubs which are used as containers for the collected oysters and serve to buoy the white-clad girls as they rest between dives. The oysters (generally _Margaritifera martensii_ - Ed.) are taken to a laboratory where a thin wire mechanism is employed to open and hold the valves apart while a very small sphere of Mississippi River mussel shell is inserted under the mantle. The oysters are then transferred to the sea in mesh cages which are suspended from a large raft, "Mikimoto's Island", and left there for three to four years, or even longer, before harvesting. Color and quality of the pearl vary with the length of time and the manner in which the oyster has reacted to the irritant of the pellet. Generally the more layers of nacre deposited around the pellet, the better the resulting pearl.

HOLIDAY TRIP: Our member Mrs. Sylvia Warshaw is planning a trip down the Jersey coast for the five-day school holiday at Eastertime and would like a shelling companion. Get in touch with her at OL.4-6759.

WELCOME TO THESE NEW MEMBERS:

Mrs. Shirley Seid, 1075 Park Avenue, New York, N. Y. 10028
Mr. and Mrs. Joseph Storet, 354 West Neck Road, Huntington, New York
Mr. Stanley Skytkowski, 156 Highland Ave., Yonkers, N. Y. 10705
Jo and Rusty Bennett, c/o Mooring Trailer Park, Marathon, Florida

THE HISTORY OF ANOMIA SIMPLEX d'Orbigny, THE JINGLE SHELL

by M. K. Jacobson

The synonyms under which this species was known are the following:

Anomia ephippium Linné, 1758
Anomia patelliformis Linné, 1761
Anomia patellaris Lamarck
Anomia electrica Gould, 1841 (not Linné)
Anomia squamola Gould, 1841 (not Linné)
Anomia glabra Verrill, 1872

Linné erroneously gave the locality of his *A. ephippium* as including America. For many years this name was in common use for our local jingle. As late as 1913 Mazÿck still used it, together with *A. simplex*, in his "Catalogue of Mollusca of South Carolina". Meanwhile it was used frequently by others who treated the local fauna: Perkins 1869, DeKay 1844, S. Smith 1859, 1865, 1870, Hubbard and Smith 1865.

It was Alcide d'Orbigny who first detected the specific difference between the west Atlantic *Anomia* and the European. In 1845, in his famous work on the mollusks of Cuba, part of the huge work on the natural and political history of that Island by Sagra, he described the east coast jingle and named it *Anomia simplex*.

In 1873, almost thirty years later, Verrill also noted the difference and, not knowing of d'Orbigny's earlier name, baptized it *A. glabra*, a name that it kept for many years. Meanwhile in 1889 the great American malacologist, William Healey Dall of Washington, after having overlooked d'Orbigny's work in his list of 1871 (where he still used the name *ephippium*), used the name *simplex* in his well known catalogue 37 of the U. S. National Museum. He apparently did not know of Verrill's *glabra*, since he made no mention of that name. For many years both names were in use, although strictly speaking only the d'Orbigny name, the earlier one, had true validity. Thus *glabra* was used by the following: S. Smith 1887 (he had apparently given up using *ephippium* after 1872, the date of Verrill's name), Wheat 1907 in the Bulletin of the Brooklyn Conchological Club, Letson 1906, Carpenter 1899, Rogers 1908 (where she wrongly ascribed the name to Linneus) and as late as 1927 by Wood and Wood in "Nautilus". However, the valid designation also had its followers: Apgar in his well-known "Mollusks of the Atlantic Coast" in 1891, apparently the earliest use of the name after Dall; Balch 1899 in his famous list of Cold Spring Harbor; Weeks 1908, Jacot 1919, Hinkley 1893, Stearns 1897. After about 1908, with apparently the one exception of Wood and Wood, the name *simplex* finally came into general use.

A word might be said about the other synonyms. Gould thought he had found Linné's *Anomia electrica* and *A. squamola* in Massachusetts. But whatever Linné had in mind when he described these shells, Gould's were not the same. *A. electrica* of Gould merely turned out to be the sulphur or golden colored variety of *simplex* and his *squamola* a young shell. S. Smith had used both names as varieties in 1862. *A. patelliformis* is either an unidentifiable Linnean species, or else it is a variety of *ephippium*. Dodge reports the presence of a shell bearing this name in the collection of the National Museum in Washington. The label is in the hand of Dall. Dodge writes: "I am willing to conclude that it is the *patelliformis* of Linnaeus and that it is a variety of *ephippium*." (American Museum of Natural History Bulletin 100, part I, p. 202.) All I have so far found out about *patellaris* Lamarck is that it appeared in Jay's Catalogue of 1852. In 1906 Letson in her "Checklist of the Mollusca of New York" lists it as a synonym of *glabra* Verrill.

A LETTER FROM QUEENSLAND

A large number of the shore and reef species of mollusks of the Indo-Pacific Oceans is composed of showy Conus, Cypraea, Strombus, etc. which with all their exotic beauty are, nonetheless, the same species one is likely to pick up in Zanzibar, Queensland or Cebu. For more unusual or rare species one must still depend on diving, commercial trawlers, or scientific dredging expeditions, regardless of the geographical locality concerned.

A letter from Queensland, Australia, excerpts from which are here given, tells, rather briefly, details of a collecting trip to the Barrier Reef. The shells collected are noteworthy for their recurring appearance in all such faunal lists from anywhere within the perimeter of the Indo-Pacific as defined by Abbott in "Indo-Pacific Mollusca" 1959, Vol. 1, No. 1., pp. 00-054. (A. D'A)

A COLLECTING TRIP OUT OF INNISFAIL, QUEENSLAND

By Mrs. B. R. Kinbacher

Our collecting party from Innisfail consisted of two members of our local shell club in addition to myself and my husband, Noel. We left on October 31st in the early afternoon for Daintree where, upon arriving that evening, we and the rest of the shelling group all slept aboard the hired boat. Two of the ladies were from America.

At 8:00 A. M. the following morning we started down the river and arrived at Mackay Reef to do some shelling during the day tide. The tide being unfavorably high, not very much was found. Noel's prize was a Voluta rutila of which eight altogether were found. One member got onto a patch of Conus generalis and quercinus where thirty specimens of each species were found. Among other Conus Noel found a very nice pair of Conus episcopus and one specimen of Conus distans and, in addition, a giant specimen of Vasum ceramicum just six inches long! While scouting around some coral he came across a hawks-bill turtle, which he caught and shelled. When the shell is polished it is very beautiful -- we now have a pair of them.

Next day we moved on to Pickersgill Reef and although the day tide was too high to get onto the reef, Noel managed some skin diving and collected nice Terebra subulata and dimidiata. At night the party collected the cay and reef and although the results were not too good some excellent Oliva sericea and tesselata were found. Noel, in addition, picked up one Oliva carneola, which is rarely to be found here.

Moving back and homeward the following day the party stopped at Undine Reef and by skin diving some Terebra species were collected. We did better that night, Noel's best being Amoria caroli and a large specimen of Murex torrefactus. All other shells found were mostly of the common sorts.

Besides those listed below, many smaller species were found, but it would make too long a list to name every one. Although it seems a lot, especially judging by what you, in America, find on your trips, the results were poor for three days of shelling. Noel and I have gotten as much on one trip at Innisfail on our local reefs. Let's hope for better shelling next year. . . Here is a general list of the larger shells collected:

Cerithium fasciatum
" sinensis
" asperum
" sp. ?

Cypraea tigris
" arabica
" isabella
" caurica

Cypraea moneta
Strombus lentiginosus
Turris marmoratus
Vasum turbinellus

(continued:)

Conus flavidus
" planorbis
" lividus
" pulicarius
" emaciatus
" arenatus
* " suturatus
" eburneus
" coronatus
" miliaris
" litteratus
" marmoreus

Conus capitaneus
" virgo
" textile
" vitulinus
" quercinus
" generalis
Ovula ovum
Oliva sericea
" annulata
" tesselata
Haliotis asinina
" etholgus

Terebra maculata
" dimidiata
" muscaria
" crenulata
" cerithina
" chlorata
" felina
" subulata
" penicillata
" affinis
Thais mancinella

*Ed: The only geographically restricted species in this list. Besides Queensland, a subspecies (?) or form is localized in Hawaii. (A. D'A.)

OUR QUEENSLAND CORRESPONDENT: For members who might like to contact the writer of the above report, to whom these shells are the product of a poor shelling trip (Well, everything is relative -- and New York is a poor relation!), the name and address of our Queensland correspondent is:

Mrs. B. R. Kinbacher, 6 Oak Street, Innisfail, North Queensland, Australia.

(The following paper was read by Harold S. Feinberg before the New York Shell Club at the October, 1963, meeting. The presentation, with color slides, was prepared with the cooperation of Dorothy and George Raeihle.)

FLORIDA MELONGENA

by Harold S. Feinberg

As you wander along the beaches of Florida and collect the Florida Crown Shell, you begin to appreciate the diversity of size, sculpture, and shape, and the elusiveness of a simple description.

From the number of specimens before us we select two fully mature shells. The first measures 123 mm while the second is a mere 36 mm. As both are adults, what can we say is the size of Melongena?

We proceed to a second pair of shells: One is completely devoid of spines. The other has three rows of shoulder spines plus another row at the base. What is the typical sculpture of Melongena?

A third pair of shells is checked for shape. The first shell is short and squat while the second is elongated and narrow. The next question obviously is: What is the normal shape of Melongena?

At this point we pose the question that is the subject of this paper:

> Are we faced with an extremely plastic species or with several species, subspecies, forms or combinations thereof?

There should be no problem determining the answer with all the popular literature on American seashells. The following chart is a resume of Melongena as described in six most popular works:

	MORRIS	WEBB	SMITH	ABBOTT	CLENCH & TURNER	PERRY & SCHWENGEL
Melongena corona Gmelin	X	X	X	X	X	X
Melongena corona belknapi Petit		X				
Melongena corona altispira Pilsbry & Vanatta			X		X	
Melongena corona inspinata Richards			X			X
Melongena corona minor Sowerby			X			
Melongena corona perspinosa Pilsbry & Vanatta			X	X		X
Melongena corona subcoronata Heilprin			X	X		X
Melongena corona johnstonei Clench & Turner					X	
Melongena bicolor Say 1827					X	
Melongena melongena Linné	X	X	X	?		

MORRIS, Percy A. "A Field Guide to the Shells"
WEBB, Walter F. "United States Mollusca"
SMITH, Maxwell "East Coast Marine Shells"
ABBOTT, R. Tucker "American Seashells"
CLENCH, William J. & TURNER, Ruth D. "Johnsonia"
PERRY, Louise M. & SCHWENGEL, Jeanne S. "Marine Shells of the Western Coast of Florida"

After studying the chart I would like to quote the following from R. Tucker Abbott's "American Seashells" (1954, pp. 234-235):

> "Melongena corona Gmelin:
>
> Numerous varieties have been named which do not even warrant subspecific standing: minor Sowerby (dwarf); estephomenos Melville (dwarf and narrow); altispira Pilsbry & Vanatta (long and narrow); bispinosa Philippi (2 rows of spines); inspinata Richards (spineless shoulder); and martiniana Philippi.
>
> Melongena corona perspinosa Pilsbry and Vanatta appears to be a good subspecies......a descendant possibly of the Pliocene subspecies subcoronata Heilprin."

We now face a choice: If we are wise, conservative and inclined toward lumping, we should just forget this Mess (chart) and call everything Melongena corona Gmelin. However, if wisdom is not our forte, and we have an inclination toward daring and zoological splitting, then the author of this paper humbly recommends the following plan:

The plan advocated by Clench and Turner with the inclusion of perspinosa Pilsbry and Vanatta as a recognizable ecological form and the fossil subcoronata Heilprin as a subspecies.

The following "arguments" can be interpreted either as "proof" for splitting or excuses for lumping.

Geological argument: The recent geological history of the Florida Peninsula reveals numerous rises and falls of the land mass which resulted in a constantly changing coast line.

Environmental argument: Melongena live for the most part in the intertidal muds of bays with slightly brackish water as opposed to the higher salinity of the open ocean. As a result, these snails live in isolated colonies rather than a continuous population.

Biological argument: Most marine snails have a free swimming juvenile stage. This enables distribution of individuals throughout the population. As a result there is a constant gene flow which generally produces a population with consistent characteristics. In her laboratory, Dr. Ruth Turner proved that Melongena does not have a free swimming stage -- the veliger begins to crawl as soon as it is hatched. With this forced inbreeding colonies develop special characteristics that meet the 70% rule. To prepare this paper we examined over a thousand shells in the field and in collections.

Ranges and Descriptions:

Melongena corona johnstonei Clench & Turner
Range: Little Lagoon, Gulf Shores, Alabama, southeast to Panacea, Wakulla County, Florida.
Description: More elongated, larger, darker, shoulder broader, shoulder spines vertical and pointed inwardly.

Melongena corona corona Gmelin
Range: Keatons Beach, Taylor Co., south to the north end of Cape Sable.
Description: Very variable. Typical shells have single rows of shoulder spines at 45°, with a row of spines on the base. Generally broadest between shoulder and base.

Melongena corona form perspinosa Pilsbry and Vanatta
Range: Tampa Bay south to Ten Thousand Islands.
Description: Generally shorter and broader, shoulder spines more horizontal with two or three additional rows below. Basal spines very long.

Melongena corona subcoronata Heilprin
Range: Fossil, either Pliocene or Pleistocene, in the Caloosahatchee Formation in central Florida.
Description: Adult specimens are very like some M. c. corona; juveniles with ribs more obvious than in other forms.

Melongena corona altispira Pilsbry & Vanatta
Range: North Cape Sable east and north to Matanza Inlet, St. Johns Co.
Description: Smaller and more elongated than typical form, single row of shoulder spines weakly developed and sometimes lacking completely.

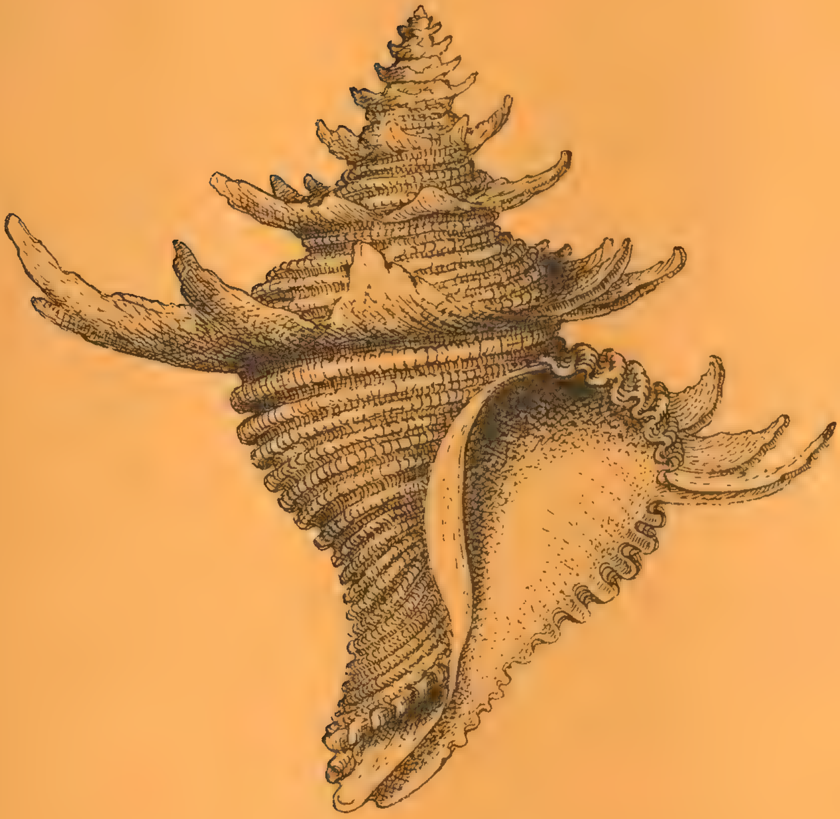
Melongena bicolor Say
Range: Key West north to Biscayne Bay, Dade Co.
Description: Much smaller, very elongated, single row of vertical spines longer and sharper than in altispira. Generally lighter in color.

CONCLUSION: Dear Reader: We have given you a method to label the crown shells in your collection, but feel that if you are sufficiently confused you might safely call them all simply "Florida Melongena"!

NEW YORK SHELL CLUB NOTES

100th Issue

MARCH 1964



LATIAXIS DALLI Emerson and D'Attilio

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Special Ed.	M. Karl Jacobson

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June. No business meeting will be held April 12th, the date of our benefit auction. The next regular meeting in the American Museum of Natural History will be held May 10th.

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR at 7924 Ankener Avenue, Elmhurst, N. Y. 11373. Other correspondence to Secretary Grace McDougall, 16 Baxter Avenue, New Hyde Park, New York.

NEW YORK SHELL CLUB AUCTION - - - APRIL 12th, 1964

to be held at the

BROADWAY DANCE STUDIO, 31-08 BROADWAY, ASTORIA, LONG ISLAND

Come at 12:00 noon for inspection of the auctioneer's tables and to collect items from the bargain tables.

THE AUCTION STARTS PROMPTLY AT 1:00 P. M.!

Coffee and cake will be served during intermission.

All items for our auction are donated (even the cake!). Get your donations to Bill Old at the Museum -- or bring them directly to the studio April 12th. No shell is too common or too rare, so we can all contribute. Associated items (such as literature, pearls, etc.) are also very welcome.

At our auction you will bid for the privilege of helping to establish an exhibit of New York Shells in our American Museum of Natural History. This will be your exhibit, bearing the name of the New York Shell Club as donor.

So come, bringing your generosity (and a sandwich). You will profit with shells, sociability and fun. Full directions to reach the studio appeared in NOTES No. 99. If at the last minute you need further information, you may telephone the studio at AStoria 4-1503.

NOTES ON THE HISTORY OF THE NOTES

By M. K. Jacobson

Some time in 1949, the first year of the life of the New York Shell Club, one of the officers,* finding himself in possession of a few packs of mimeo paper and stencils, suggested, in imitation of the well-known MINUTES of the Conchological Club of Southern California, that the New York Club publish a house organ. The first number, which bears no date, was run off some time after May 15th, 1949, the day of the first field trip of the Club.

Since the Club did not own a mimeo machine, we were dependent on occasional lucky chances to use borrowed ones. For this reason, among others, the NOTES appeared very intermittently: No. 2 Jan. 1950, No. 3

Sept. 1950, No. 4 March 1951, etc. By the time No. 8 appeared (July 1954) the mimeo paper and stencils had run out and that issue had to be rexographed. It was not until No. 9 (Nov. 1954), as the result of the generous gift by Dr. and Mrs. Julius Wisoff of a mimeo machine and a large supply of mimeo paper, that the NOTES began to appear with some degree of regularity.

But now a new problem arose. By the time No. 29 rolled off the presses, the editor* (who was also typist, printer, proof reader -- the order of professions here is not accidental -- addresser, stamper, mailer) began to hint broadly that he needed help. Except for occasional bits of help, it was not until No. 49 came around that Dorothy Raeihle relieved him of the onerous job of typing. As a result, the typing and spelling of the paper improved considerably.

Meanwhile Jo Wichern had taken on the work of addressing, stamping and mailing -- no small task as membership increased -- and had addressed thousands of pieces of mail by the fall of 1960 when the addressograph saved her from writer's cramp.

Issue No. 57 -- on the occasion of the 10th anniversary of the founding of the Club -- was run off on our new Gestetner machine, a group of willing and regular helpers organized, and the NOTES took its place as a real club organ. By No. 68 (Jan. 1961) Dorothy assumed full editorship -- a post she had actually been filling long before. Now editing no longer depended on cutting the article to fill the space, but space was made available when the article demanded it.

(* M. K. Jacobson--Ed.)

PUBLICATIONS:

JOHNSONIA

No. 42 - Pedipes, No. 43 - Volutinae, etc.

Monograph No. 42 of Volume 4 of JOHNSONIA treats two small but interesting groups of Ellobiids: THE GENERA PEDIPES AND LAEMODONTA IN THE WESTERN ATLANTIC, by William J. Clench. No. 43 fills a long-awaited need, since the family Volutidae is popular with everyone. (JOHNSONIA Nos. 22 and 32 had previously covered the volutid species occuring in Florida, Cuba and the Gulf of Mexico.) The present monograph by William J. Clench and Ruth D. Turner is entitled THE SUBFAMILIES VOLUTINAE, ZIDONINAE, ODONTOCYMBIOLINAE AND CALLIOTECTINAE IN THE WESTERN ATLANTIC. This may sound somewhat ponderous to the average collector who undoubtedly knows them as "Volutes". The paper covers the three recognized species of Voluta (sensu stricto): V. musica, ebraea, and virescens. The many varietal names of V. musica are placed in synonymy. It is shown that the name Voluta angulata Swainson is preoccupied. Therefore, the well-known Brazilian shell must take the earliest available synonym, viz. Zidona dufresnei Donovan (1823). Two new species from off the Argentine coast are described. This paper is a "must" for any conchological library.

W. E. Old, Jr.

NOTE TO ABOVE: For subscription to JOHNSONIA, $4.00 per 100 pages, send check or money order to William J. Clench, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass.

GEMMA GEMMA Totten

By M. K. Jacobson

One of the commonest bivalves in our area is the Gem clam, well called so because of its pretty shape and its handsome purple color, when it is present. It was named *Venus gemma* by Totten in 1834. (For interesting notes on this remarkable man see Jacobson and Emerson, SHELLS OF THE NEW YORK CITY AREA, p. 90-91.) He named it from shells in Provincetown, Mass. (type locality), where the shells are very darkly colored and not very inflated. Up to the time of Totten's description, the small clams had been regarded as the fry of *Mercenaria mercenaria*. In 1853 Deshayes made the special genus *Gemma* for it, probably because it differs from the true *Venus*, among other things, in being ovoviviparous -- i.e. it hatches its young within its shell. However, under the rules of British nomenclature (this was before the time of the present international rules) no species name could be used as a genus name -- a rule, incidentally, which is still being followed in botany. For this reason in 1869 Perkins renamed the genus *Totteniana*, and the shell was known as *Totteniana gemma* until the international rules were established.

In 1842 H. C. Lea named another species. He called it *Cyrena purpurea*, putting it into the genus *Cyrena* because of its teeth and of its ovoviviparous habit. However, the genus *Cyrena* Lamarck 1818 -- now known as *Corbicula* Megerle von Mühlfeld 1811 -- is a genus of rather large, brackish water clams belonging to the family *Sphaeriidae*. (The United States has recently been invaded by large numbers of *Corbicula fluminea* Müller from the Far East. They are causing much distress in the rivers of the Midwest and elsewhere.) We will discuss the status of Lea's species in a moment.

Two other species names have been attached to the genus: *manhattensis* Prime 1862, from the East River and Greenport, Long Island, and *fretensis* Rehder, 1939 from Crab Meadow, Long Island. I also find the name *concentrica* Dall 1889, which Johnson (1932) in his "Check List" gives as a full synonym of *purpurea* Lea.

Various writers have treated these names in different fashion. Johnson considers *manhattensis* a subspecies, and *purpurea* a species. Verrill (1871) lists *manhattensis* doubtfully as a full species and says: "Its color is not constant, some specimens being pale straw-color, others purplish." (p. 682) (Note: the purplish ones, by definition, are not manhattensis.) Gould (1870) considers *manhattensis* a good species along with *gemma*. Balch in 1899 considered *purpurea* a full species and made *manhattensis* a variety of it. He does not list *gemma* at all from Cold Spring Harbor. In 1954 Abbott listed only *gemma* and calls the other names subspecies "whose validity needs clarification." (p. 419).

In popular books the genus and its species have also been treated in different manners. Maxwell Smith (1945, p. 55) does not show that he understood the differences, if there are indeed any, between *gemma* and *purpurea*. His figure of *purpurea* is unrecognizable, and he says of it that it "is white instead of purple". He makes no mention of *manhattensis*. Percy Morris (p. 72) seems to be describing *purpurea* rather than *gemma*: "Color is pale lavender, the inside white, shading to purplish near the posterior end". Rogers (p. 351) considers *purpurea* the same as *gemma*.

Before we favor the reader with our own opinion, it might be well to make a few observations. As far as the printed descriptions alone are concerned, a very well constructed little key can be drawn up as follows:

Lower margin uncrenulated .... PURPUREA
Lower margin crenulated:
  Color all white, no purple .... MANHATTENSIS
  Some purple color:
    Almost entire shell purple .... GEMMA
    Purple confined to a blotch
     in the postero-dorsal area ...... FRETENSIS

Difficulties crop up immediately. Apgar (1881) states that purpurea has the inner margin crenulated. Otherwise also it is difficult to say whether these distinctions hold as well in nature. The late Dr. Henry A. Pilsbry was interested in the gemma problem, but unfortunately did not publish his conclusions if indeed he reached any. In an interview with the writer he made the following points: that Rehder in his description of fretensis did not mention purpurea with which Dr. Pilsbry thought it was closely related, if not identical. That the form which Gemma assumes might be due entirely to its ecology and is no more a matter of taxonomic distinction than the various forms of Thais lapillus. But this is a matter that can be settled only by breeding experiments.

In view of all this it is not an easy matter to come to any fixed conclusions. Maybe anatomical and ecological studies will serve to clarify the matter. For the moment, however, the following conclusions seem to be the most practicable:

1. fretensis Rehder is a complete synonym of purpurea H. C. Lea. Rehder apparently completely overlooked the existence of the earlier name.
2. The other three forms can be most easily distinguished by their color, the palest ones with no purple being manhattensis, the amethyst ones with large white areas purpurea and the darkest ones, with color throughout most of the shell, gemma. This distinction of colors is most easily seen when the shells are viewed in the mass, since many individuals, especially purpurea, cannot be easily placed. This would argue that we are dealing here with subspecies at best.
3. On this basis, true gemma does not occur locally, being confined to more northern areas. We have only purpurea, common on the beaches of the Sound, and manhattensis in the muddy bays.

Gemma in one form or another extends from Labrador clear around to Texas. It has been introduced into Puget Sound on the West Coast and is also reported from the Bahamas. Its closest relative is the narrowly trigonal clam from Florida called Parastarte triquetra Conrad. Thiele considers Parastarte a subgenus of Gemma.

Gemma is extremely common in shallow water, where in one study as many as 190 specimens per square inch were counted. Bradley and Cooke in 1959 published a paper on this genus for the Fish and Wildlife Service. They state that this extreme concentration of Gemma seems to put them into competition with other bivalves, and noted that Mya especially seems to decline in numbers and even to disappear when the Gemma population becomes too large. This makes the Gem clam an economic hazard. The two authors also made other important observations. They noted that Gemma can live for about four years, but most die after two; that they do not feed in sunlight, doing so almost entirely by night; that they move through the sand like a Spisula, and in feeding allow only the posterior colored portion to rise above the sand or mud in which they live; that by subdued light only their siphons and not any part of the shell are exposed.

THE ISLAND OF SHELLS

By Dorothy Raeihle

Two of the Indian names for it were SEWANHACKY and WAMPONOMON. In 1693 the colonial Legislature named it NASSAU. But the colonists called it LONG ISLAND, and so it is to-day. The Indian names refer to their currency, which was Wampum, or Sewan, which they made from the shells of the hard clam, Mercenaria mercenaria Linné, and the whelks, Busycon canaliculatum Linné and B. carica Gmelin. In the Narragansett language the suffix variously spelled by historians 'ake', 'acky', 'ock', 'auk', 'agh' etc. indicated locality in the sense of earth, or land. Thus SEWANHACKY has been translated "The Island of Shells" and, perhaps more literally, "The Place of (the shells of) Sewan". The Narragansett suffix is still prominent on our map: Want-agh, Mont-auk, Shinnec-ock, Pehickkon-uck (= Peconic), Akkab-auk (= Aquebogue), Ackinghs-ack (= Hackensack) etc. -- but the suffix was dropped from Rechquā-akie to become simply Rockaway.

Early records of Long Island tell of shell heaps composed entirely of broken shells, without doubt the refuse from the manufacture of wampum -- as shells from kitchen middens are found more or less intact. As late as 1862 ("History of Suffolk County, New York") was written: "On the margins of creeks along the south side of the island are immense shell banks left by the Indians; these clam or quahaug shells have been burnt and the lime used profitably." However, though Long Island was one of the chief localities for wampum manufacture, the finished product is almost unknown from local sites. It is not unlikely that the political situation of the times was responsible for the paucity of the finished product remaining on Long Island, as (ibid.) "...their stores of wampum tempted the fierce tribes of the mainland".

It was the blue portion of the appropriately named Mercenaria mercenaria ("mercenaria" means "used in trade") and the white inner pillars of the Busycon that were laboriously fashioned into cylinders, then perforated lengthwise with a stone drill. The finished beads varied in size from 1/8 to almost 1/2 inch in length and from 1/8 to 3/16 inch in diameter. This was the precious wampum. The surfaces of these polished cylinders were not entirely smooth, but bore the marks of chipping and grinding, in appearance as if made by a miniature adz. The blue beads were prized above the white ones, with the darkest beads the most valuable. The beads were sometimes used loose, more often strung on sinew, bark threads, or filaments of slippery elm twisted into a strand, in appropriate lengths. Strings roughly a foot in length were the most common size for general economic use.

In addition to being a true currency, wampum was extremely important culturally. Strings of beads were woven on bowlooms into the historical wampum belts, with their patterns of blue and white that told a story to the initiate. These were the "written" records of the Indians. The Museum of the American Indian, in New York City, displays a treaty belt given to William Penn in 1683. It is of white beads with a meander of dark beads representing river or mountain boundaries, and with crosses in dark beads depicting lands ceded to the Quakers.

"The Handbook of American Indians" tells us: "To the Iroquois and many other Indians, white as a color was auspicious, and its use in ritual and ceremony therefore indicated peace, health, welfare and prosperity,

ideas expressed by white wampum when ceremonially employed. On the contrary, black as a color was inauspicious and its use therefore indicated hostility, sorrow, death, condolence and mourning, ideas expressed by dark or purple wampum when ceremonially employed. . . An all dark bead string was a notice of the death of a chief. . . White strings of wampum tinged red by vermillion or some other red color were used as a challenge or declaration of war or as an invitation to friends to join in a war."

The earliest report we have seen concerning the working of shell is one quoted from Lescarbot's "History of New France", 1609: (The Indians) "make carcanets and bracelets from the shells of those great sea-shells which are called Vignols and are like unto snails, which they break and gather up in a thousand pieces, then polish them upon a gres" (hot stone) "so that they make them very small, and when they have pierced them, they make beads, like to those which we call procelain. Among these beads they mingle alternately other beads, as dark as the others I have spoken of are white...which they polish and make as small as they wish."

The Indians used shells for more than wampum -- Alanson Skinner, in his "Indians of Greater New York", wrote: "Occasionally perforated oyster and clam shells were used as pendants. Clam shells were used as scrapers and even knives. Burnt and ground shells were used to temper pottery, and the corrugated edge of the scallop shell was sometimes pressed into the soft clay of an unfinished vessel in order to decorate it." In addition, pipe stems two to three inches long were made of the inner columella of the Busycon.

But of course a primary, if not the primary, use of the many mollusks was as food -- and there was an abundant, year 'round supply, a delectable assortment. We don't know who smoked the first oyster, but the Long Island Indians may have, either intentionally or inadvertantly, as they dried them. Skinner (ibid.) noted that "The Mohawk Indians of the Iroquois Confederacy demanded tribute from the Manhattans of dried oysters and wampum". The Pequots of Connecticut also demanded tribute, under like threats of bloody raids. The tributes exacted by the Mohawks were undoubtedly carried into the Iroquois country by a route still in use, the famous Iroquois, or Mohawk, Trail, a narrow path worn through generations of use into a groove, stretching from the Hudson River at what is now Albany up and across country through the principal villages of the Five Nations to what is now Buffalo on Lake Erie. This was about as far inland as the wampum of the sea coast penetrated the customs of the Indians. Trained Iroquois runners could relay messages over the entire length of the Trail in three days -- an illustration of one of these runners depicts a young Indian clad in one feather, breech-clout and moccasins, and carrying no baggage whatsoever. Naturally, porters laden with tribute traveled more slowly. (To-day, trucks carrying Long Island clams and oysters traverse this same general route, over the Mohawk and Ontario Thruways.)

Came the colonists, who expeditiously integrated wampum into their own currency system, supplementing barter and a short supply of hard cash, then almost immediately went into the wampum business themselves -- with varied results. As recorded in "The Handbook of American Indians": "As early as 1640, in New England and especially in New Netherland, there was much trouble and discontent owing to the manufacture of counterfeit and unfinished wampum." (Though standards of exchange had already been in effect, the continuing eagerness of the colonists to, literally, make

money, soon brought with it the need for further regulation. Meanwhile, pity the poor Indian! From a publication of the Museum of the American Indian we have this account written in 1643 which, in the light of history, contains latent pathos:

"The (Narragansett) Indians are ignorant of Europes Coyne; yet they have given a name to ours, and call it Monèash from the English money. Their owne is of two sorts; one white, which they make of the stem or stocke of the Periwincle, which they call Mateaûhock, when all the shell is broken off; and of this sort six of their small Beads (which they make with holes to string the bracelets) are currant with the English for a Peny. The second is black, inclining to blew, which is made of the shell of a fish, which some English call Hens, Poquaûhock, and of this sort three make an English peny. They that live upon the Sea side generally make of it, and as many make as will."

Roger Williams, 1643.

(The (shell)fish called "Hens" is our hard clam, Mercenaria mercenaria. Roger Williams' "Periwincle" is our Whelk, the Busycon. Our Periwinkle, Littorina littorea, was used ornamentally, but not in making wampum. Occasionally wampum was made from Buccinum and Pecten shells, but these were much less valuable.)

Other reports of the period refer to the shell money as "Zeewan" (DeVries Journal, 1641) or "Seawant"(Montanus, 1671). In the Narragansett language "siwân" referred to the loose beads, while "wampompeag" (from wab= white + umpe=string + ag, plural suffix) meant strung white beads. However, as illustrated in the 1650 ordinance we found recorded in "The Handbook...", the English abbreviation "wampum" soon became all-inclusive in general usage:

"An Ordinance of the Director and Council of New Netherland, May 30, 1650: Whereas, we have by experience, and for a long time seen the decline and daily depreciation of the loose wampum among which are circulating many with holes half finished, also some of stone, bone, glass, muscle-shells, horn, yea, even of wood and broken beads, together with the manifold complaints of the inhabitants that they can not go to market with such wampum, nor obtain any commodities, not even a small loaf of white bread or pot of beer from the traders, bakers, or tapsters for loose wampum . . . do ordain that the commercial shall pass and be good pay as heretofore, to wit, six white or three black for one stiver, and on the contrary, poor strung wampum shall pass eight white and four black for one stiver."

Whereas the Indians had shaped the shell beads into cylinders by grinding them on stones, then boring them with a tiny stone drill or with reed and split stick and sand, and giving them polish with fine sand and buckskin, the white man used a lathe, bored the hole with a steel tool, polished several at a time (a one-foot string) on a grindstone. As inflation developed and various other materials were substituted for shell, wampum as a currency medium lost its prestige. However, the manufacture of counterfeit shell wampum continued until the end of the 19th century. John Jacob Astor (1763-1848), astute business man that he was, "employed men to manufacture it here (Suffolk County) that he might send it to the northwest and exchange it with the Indians there for furs". The exact location of an Astor private mint was not given -- it is possible that his wampum was a product of industry in the homes. There is, however, record of a wampum mint in Babylon.

The Museum of the American Indian has an exhibit of tools, and materials from raw to finished product, as used in the manufacture of counterfeit wampum by the Campbell family at Pascack (now Park Ridge), New Jersey. This was "the most important of these (wampum mints) along the mid-Atlantic seaboard, where clams were plentiful and ships returning from the Caribbean carried conch shells as ballast. The Campbell family operated their business from 1770 until 1899, although the height of their industry was probably from 1820 to 1870. Most of their production was sold to white traders".

It is very unlikely that any remnants remain on Long Island of what were in 1862 "immense heaps of the broken shells of the quahog or periwinkle that are their (the Indians') only monuments", or of "the extensive shell banks near the village of Nissaquag (that) show that it was the site of a considerable settlement". And we can pretty well assume that the last traces of the Campbell factory have been obliterated by the mushrooming growth of northern New Jersey, but here we are fortunate to have these reminiscences of our member B. F. Grunzig:

"Here goes, for the little that I recall about the wampum mill in North Jersey, where at the age of 10 to 12, over half a century ago, I would go swimming in its almost sediment-filled mill pond.

Location: A quarter mile or less west of the Park Ridge, New Jersey, Railroad Station. Follow the main street west of station to a bridge over the creek, walk south down the creek for a quarter mile, through open fields to the dilapidated old mill.

It was a swell place for boys to go swimming as nature intended we should. Your inquiry brought back memories of three most pleasant summers.

Shell mounds were around the mill, which even in those days had been well worked over, but small artifacts, such as flint arrowheads, were still to be found. The old mounds had already been well flattened out, as I recall, and scattered over the surrounding area.

Sorry I cannot elaborate and send you samples of the 'boyhood treasures' I collected in those days, but they were long ago consigned to the trash collectors."

LITERATURE CITED

HISTORY OF SUFFOLK COUNTY, N. Y. 1683-1882. Munsell & Co., N. Y., 1882

HANDBOOK OF AMERICAN INDIANS, Bulletin 30, Smithsonian Institute, Bureau of American Ethnology, 1907

INDIANS OF GREATER NEW YORK, Alanson Skinner of the American Museum of Natural History, 1915

THE ECONOMIC MOLLUSCA OF ACADIA, W. F. Ganong, 1889. Bulletin No. VIII Natural History Soc. of New Brunswick

THE PENN WAMPUM BELTS, Leaflet #4, Museum of the American Indian

HISTORIC AMERICAN HIGHWAYS, American Association of State Highway Officials, (circa 1950), Washington, D. C.

WEBSTER'S NEW INTERNATIONAL DICTIONARY, Joseph Coy Green, special editor.

B. F. GRUNZIG, Avenel, New Jersey, Personal communication.

EXHIBITS OF THE MUSEUM OF THE AMERICAN INDIAN, New York City, and to WILLIAM STILES, Curator, our thanks and appreciation for his assistance.

JANTHINA AND MY SAILOR'S VALENTINE

By Louise Allderdice Travers

It was in the summer of 1956 that I read Rachel Carson's "Edge of the Sea". Every page was a delight. On one page I read: "Storms bring in many strays from tropical waters." Then Miss Carson told about the violet snail, Janthina, delicate as thistle down. She had wanted one, and the fact that a shell shop in Nag's Head would not sell her their only specimen intrigued me and I imagine that is why the violet snail tossed in my dreams whenever the winds blew hard over tropical waters.

It was while in Delray, Florida, in January of 1960, that an all night wind robbed me of my sleep. Morning came and I hurried to the water's edge. It was low tide and there before my wondering eyes was a purple-stained beach -- with hundreds of violet snails, Janthina.

The largest of the three species is Janthina janthina, but there was also globosa and exigua. This lavender, dainty, extremely fragile snail never travels on the ocean floor. With glands in its foot it makes a cluster of cellophane-like bubbles and hangs on to it. More bubbles are added until the snail has enlarged the cluster into a tiny air mattress floating on the water's surface far from shore. Fishermen seeing it assume it to be a jellyfish -- for Janthina is not visible to them nor are they to Janthina, as this mollusk has no eyes.

The mother lays her eggs in neat rows under the mattress. As the young develop, they too construct a tiny bubble float. At times heavy winds blowing towards the shore push these floating objects onto the beach, and here this morning their bruised purple bodies lay dying the sand with their royal color.

On the sea Janthina floats together with Velella, the jellyfish-like creature known as "By the Wind Sailor", and takes nourishment from its tissues. But unless the waves deposit Velella at your feet it will go unnoticed, for it shrivels quickly when cast ashore.

I gathered up the snails and tried to save them in a jar of sea water, but they did not live. The little bubbles shriveled and disappeared. Removing the dead mollusks was tedious and disastrous. I did it all wrong. I believe now that they will come out themselves in fresh water. However, their strong color remained, and it was this that reminded me that at home I had a Sailor's Valentine, made at least a hundred and fifty years ago, with a circle of their shells purple to this day.

The romance attached to these so-called Sailor's Valentines had long fascinated me: Men of the sea, leaving the cold northern waters heading south in search of whales, found on the warm beaches these colorful shells which never would be seen by their women at home. So as these sailors waited for wind and tide they gathered the shells on the beaches. The ship's carpenter made octagonal boxes (so the legend ran) as he did for the compass, and the sailors filled them with sea shells in a solid, colorful mosaic design. The boxes had a glass set on them, and two halves were hinged together so they could be safely carried home as the vessel tossed on the rough seas. How thoughtful of these men to make these gifts! They even used tiny shells to spell out sentiments: "Remember the Giver", "Forget Me Not", "Welcome Home". This story warmed my heart.

I was able to acquire and examine many more of these Valentines. Soon

the similarity of design began to strike me. I noted that the paper partitions were all of the same kind of paper. How could these sailors with their hands covered with grease and oil manage such delicate work? I found one "Gift from Barbadoes" and a friend even had one with a label of a shop in Barbadoes! The mystery was deepening and gnawing at my trusting soul. I decided I must go to Barbadoes and fathom this for myself.

I am so glad I did, for it is a fascinating island in the West Indies, with every kind of scenery and an early history very like ours. English noblemen settled Barbadoes. They brought their entire households, and artisans, and built large estates. The growing of sugar cane with slave labor became an extremely prosperous industry.

It was in the 19th Century that great numbers of whaling ships sailed out of Nantucket, the original American whaling center, and then from New Bedford. They hunted their prey from Newfoundland to the Gulf Stream about the West Indies, then went on around the tip of South America to the productive waters of the Pacific. Sometimes these ships were gone for years on a single voyage.

So now the secret was out, the mystery solved, for Barbadoes was the last port of call for the whalers returning home. There, alert British ladies and merchants knew well that the sailors had not been thinking too much of their women left home while they strolled the sunny sands. They were empty handed and ready to buy the Sailor's Valentines made by the Barbadians -- thereby proving their undying love and devotion and assuring themselves a warm welcome at home.

VAGARIES OF WIND AND TIDE

Last month Louise Travers again saw the beach at Delray purple with Janthina, and we have the report of several Argonauta picked up during the same period. Meanwhile Ethelyn Woodlock was revisiting St. Johns, where her shelling last year was fabulous (See NOTES No. 95). Her card this year reads: "The shells aren't here!"

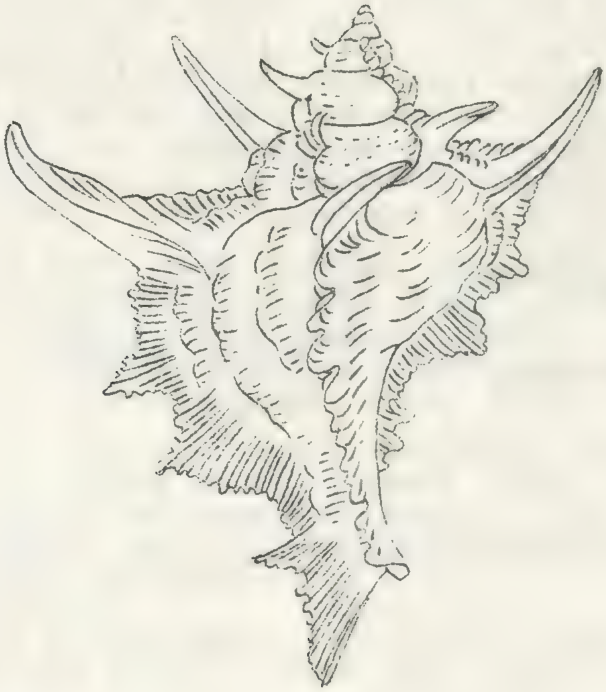
MUREX CALCAR Kiener, A WESTERN ATLANTIC SPECIES

By Anthony D'Attilio

Specimens of a Murex received recently from Brazil leave no doubt that they are referrable to Murex calcar Kiener 1843. The complete citation is: "Iconographie des Coquilles Vivantes", Monograph on Murex, pp. 107, 108, pl. 36, fig. 1, 2. Kiener was not aware of the locality where this little known Murex was to be found living.

The specimens now coming to light are obtained in the neighborhood of Rio de Janeiro, Brazil, by commercial food fish trawlers in moderate depths.

Murex calcar, no doubt, is closely related to Murex senegalensis Gmelin, but differs somewhat from that species by the longer spines with a web-like growth connecting spine to spine. In addition, the spiral threads seem to be finer in M. calcar and the shell appears to be, in general, of larger size. Murex senegalensis is at present known from both Brazil and West Africa. Neither Knudsen 1956 nor Nicklès 1950 have reported Murex calcar from West Africa; also, it is not in Marche-Marchad 1958.



MUREX CALCAR Kiener

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LITERATURE CITED:

1950 Nicklès, M.,"Mollusques Testaces Marins de la Cote Occidentale d'Afrique" 2:1-269.
1956 Knudsen, J., "Marine Prosobranchs of Tropical West Africa" pp.1-110
1958 Marche-Marchad, I., "Nouveau Catalogue de La Collection De Mollusques Testaceus Marins de l'IFAN".

CONCERNING OUR COVER ILLUSTRATION

In his article "The Japanese Latiaxis" (NOTES No. 48, January 1959) Anthony D'Attilio remarked:

"*Latiaxis deburghiae* Reeve was listed by Dall and others from deep water off Florida. It has never been critically compared, to this writer's knowledge, with *Latiaxis deburghiae* from Japan. Offhand it does not appear likely that one member of this genus should be living in such vastly removed areas of separate oceans."

The correctness of Mr. D'Attilio's observation is borne out in "American Museum Novitates", No. 2149, July 25, 1963 -- "A New Species of *Latiaxis* from the Western Atlantic", By William K. Emerson and Anthony D'Attilio.

We consider our cover unique, as the drawing of the shell was made by its co-author, Anthony D'Attilio.

dr

A VISIT TO CHINCOTEAGUE ISLAND

By Harold S. Feinberg

On July 21, 1962, we visited picturesque Chincoteague Island with the hope of collecting a localized subspecies of *Triodopsis hopetonensis*. This locality, in Accomack County, Virginia, on the Delmarva Peninsula, is famous for its fishing, oyster farming and wild horses.

We first explored all the likely areas for land snails and found nothing. After giving up land collecting as a lost cause we proceeded through a salt marsh to the inlet to hunt for marines. *Littorina irrorata* Say was everywhere. Much to our surprise we found a single live adult *Littorina saxatilis* Olivi living with its commoner relative. To the best of our knowledge the previous southern record for *L. saxatilis* is in New Jersey.

Below the low water mark were several *Urosalpinx cinerea* Say of quite large size. The largest measures 42.5 mm. This large ecological form has been called *U. cinerea follyensis* B. Baker and *U. follyensis* B. Baker. In this same area we found, dead, a large *Anadara ovalis* Bruguiere that measures 57 mm long, 45.5 mm high, 48 mm wide.

Walking back through the salt marsh we found, living, three species of land snails. A salt marsh is an unusual place to find a live land snail, much less large numbers of several species. The snails were *Pupoides albilabris* C. B. Adams, *Helicella caperata* Montagu and *Triodopsis hopetonensis chincoteagensis* Pilsbry.

The European snail, *H. caperata*, has been reported from Norfolk, but I believe this to be the first record from Delmarva.

T. h. chincoteagensis was described from five specimens found at this locality and a second lot was collected at Brighton, Northampton County. This subspecies was described mainly because of a smaller umbilicus and reduced size of the teeth. We collected a large number of shells at the type locality (Chincoteague) and a dozen shells at Willis Wharf, Northampton County (new locality). The Chincoteague shells all fit the description, but the Willis Wharf shells are intermediate between *T. h. chincoteagensis* and typical *T. hopetonensis* Shuttleworth. I doubt that this is a valid subspecies and is probably just a local form.

Sometime we hope to return to Chincoteague and look for *Bittium virginicum* Henderson and Bartsch.

HOW TO LIVE WITH A SHELL COLLECTOR
or
Sage Advice from an Expert in Co-existence

By Selma Feinberg

How do you live with a shell collector? The obvious answer is: "Become one." But not all of us can make it --- So if you can't join 'em, Co-exist!

There are several rules which should be followed by every prospective co-existor. This is necessary for the sake of compatibility, and for the sake of survival, in a rather unusual environment created by a rather unique organism, "Collectus molluscae". You add your own specific name. I'm concerned mainly with "Collectus molluscae Feinbergi". Although the general rules apply, you will have to compensate for individual differences. There can be no "lumping" here!

Rule #1. Do some serious self-analysis. Determine any elements in your own personality that tend toward nuttiness -- and then carefully cultivate them. The rewards are great:

In the first place, you increase your power to distract. In time you may become more important than Triodopsis tridentata. In the second place, in moments of stress, when logic fails, when you cannot possibly grasp the motivations of "Collectus", you will be able to rely on instinct. Without thinking, purely by inspirational means, you will be able to handle the emergency. Finally, and this reward comes only to the highly successful cultivator, you will be accepted among shell collectors as one of the blessed. Although you won't be able to communicate verbally, you will be able to establish emotional rapport. Thus you can bask in the warm glow of conviviality and conversation without understanding a single word.

On the subject of communication, it can't hurt to learn some of the vocabulary, though I've heard varying opinions on this. The most elementary, child's picture-book level of shell identification will help you get by. What little I know, I learned painlessly, simply by repeating the names of the shells on our patterned shower curtain every time I took a shower. (Obviously I didn't get very far with it, because to me, in my now Alice-in-Wonderland world, it will always be "Nefarious obsoleta".)

Rule #2. If you possibly can, develop a hobby of your own, preferably one that requires collecting. Patterns of behaviour which have puzzled you for years will suddenly become crystal clear. Making little boxes out of big boxes, acquiring all kinds of weird and cumbersome equipment, throwing out non-essentials like clothing and cooking utensils to make room for THE COLLECTION, will all seem not only normal but the only thing to do. Even not coming in out of the rain will begin to make sense.

Rule #3. (You can throw out the others but this one works!) Spend a great deal of time with "Collectus molluscae"; observe his ways and his moods (or hers); and remember that he requires (and deserves) endless patience, gentle humoring -- and much respect.

INTERESTING FILMS to be presented (free) in the museum auditorium during Easter Week include: March 30: "Kon Tiki"; March 31: "Serengeti Shall Not Die"; April 2: Walt Disney's "Secrets of Life"; April 3: "The Living Desert". Films start at 2:00 P. M.

SUBJECT INDEX

(Selected listings)

NEW YORK SHELL CLUB NOTES, Nos. 101 - 150

(125.4 = Issue 125, page 4, etc.)

Amateur workers, on the importance of (letter, Teskey) 125.4
AMU Meetings, reports on:
    1964 New Orleans 104.2; field trip 105.4
    1965 New York 114.1
    1966 Chapel Hill 124.2
    1966 Pacific Division, Seattle 124.1
    1967 Ottawa 134.1
    1968 Corpus Christi, 144 enc. Interludes 146.1
AMU Newsletter 144.6, 148.7
Antiquarian Shell Books, Proposal to Register with AMU 133.5
Antiquity:
    Aelianus on pearls 140.5
    " on *Pinna* 117.3
Archaeology:
    Cro-Magnon ornament 115.2
    South Florida 146.6
Art: Shell Symbolism in Ancient Mesoamerican Art 103.7
Aquariums: See "Living Mollusks"
Auction, Katsaras 124.7

Buoys, Navigation, Biol. Use of Organisms from 106.1

Calcining of stored specimens 116.6
Chitons, Iron-clad teeth 107.8
Color variations in:
    Chaetopleura apiculata 125.3
    Cypraea cervus 120.8
    Cypraea pantherina 118.7
Collections: Grunzig 120.7
    van Rÿgersma 103.4
    Tobleman 147.2
    Wisoff 103.4
Conchology, Earliest American (Say) 134.6
Conservation, Concerning 121.6

Drilled *Spisula* valves 111.5, 142.5, Placement 140.6

Ecology: Basic factors 133.6
    Rapana in Black Sea 138.4
Editor's Minute 124.7

Fish Bowls, Shelling in 123.7
Food Thoughts on Mollusks 124.6
    of Wildlife, Mollusks as 143.6
    of Kite 104.8
Fossil Venus Clams in Rockaway 141.2

Geographical Distribution of Mollusks 144.4
Giant *Haminoea solitaria* 137.7
Glossary of shelling terms in English, French, Spanish, Portuguese (Kline) 123.8
Growth rate of *Strombus gigas* 121.5

Hirase, Yochiro 108.4
Humor: "What is a...?" (taxonomic terms) 143.7
    Wodehouse 118.8
Humor, unintentional (?):
    'Ear 'Ear (NAUTILUS) 117.3

Iron-clad teeth in Chitons 107.8

JOHNSONIA, list of monographs available 112.2

Key to Archeo-meso-neo gastropods 104.6
    to Prosobranch radulae (ill.) 106.3

Land shells: of Big Pine Key, Fla. (map, checklist) 110.5; correction 111.8
    from Mayan ruins (illus.) 120.5
    lost colonies in Rockaway, *Cepea nemoralis* (illus.) 119.5
Law: *Helix pomatia*, determining legal size, Switzerland 140.5
    re: *Mytilus edulis* in Great Britain 141.3
Limpets, after oil pollution 149.2
Literature:
    Aelianus, 200 AD: 117.3, 140.5
    Davies, 1666: History of the Caribby-Islands 137.5
    Josselyn: New England's Rarities (1672) 124.5
    Mollusks & Literature 146.3, 147.4, 148.3.

- Literature (continued):
  - Pilsbry, Dr. H. A.: First Shell Paper 114.3
- Living Mollusks, Observations of:
  - Abalone, Reproduction 143.5
  - Babylonia ambulacrum 124.4
  - Chaetopleura apiculata 114.8, 121.5, 125.3, 131.7
  - Epitonium rupicola 107.7
  - Ferrissia parallela 123.7
  - Ischnochiton floridanus 131.7
  - Littorina:
    - irrorata 112.6
    - locomotion 112.7, 113.8
    - saxatilis, reproduction 144.3
  - Murex brevifrons 134.5
  - Neosimnia, care of 148.5
  - Neritina reclivata 112.6
  - Octopus: bite 115.7
    - early growth 143.5
  - Odostomia, Biology of 115.2
  - Siphonaria, Life History 120.3
  - Sphaerium 113.4
  - Strombus alatus 119.7
  - Voluta musica 134.5

- Madagascar, Graveyard in 107.4
- Magnetite, Chiton radula 107.8
- Marine Currents, Influence on Molluscan Fauna 150.7
- Medical Research, Mollusks in 104.7
- Mounds & Middens, Indian 146.6
- Musical Instruments, Shells as (Cassis, Charonia) 128.2

- NATIONAL GEOGRAPHIC: List of articles on shells and marine life 114.5; 150.2, 131.3
- NEW YORK CITY AREA:
  - Conchology in 113.7
  - Crassinella, rare in 131.3
  - Local food species 124.6
  - Ward's Point checklist 102.2
  - Wintertime Shelling in 132.5
- NEW YORK SHELL CLUB
  - Field Trips:
  - 1964 Ward's Pt., S.I. 104.1
  - 1965 Croton Pt. State Pk. 113.3
  - 1965 Orient Bch. " " 113.3
  - 1966 " " " " 123.1
  - 1967 " " " " 133.1
  - 1968 " " " " 144.2
  - Formation of NYSC 148.1

- New York Shell Club (Continued):
  - *GUEST SPEAKERS: (Summaries)
  - Boss, Dr. Kenneth J., Feb. 1967: "Tellin' the Tellens" 129.2
  - Davis, Adelaide, May 1967: "Trip to Taiwan" 136.3
  - Emerson, Dr. W. K., March 1965: "Distribution of Littoral Molluscan Faunas of Baja California, Mexico" 111.3
  - Foster, Richard W., May 1964: "Collecting Shells in the Cook Islands 1962" 103.5
  - Kline, Mary & George, May 1966: "Expedition to Costa Rica" 122.1; Honored by Brazil 117.3; Nov. 1968: Sulu Expedition" 149.6
  - Merrill, Arthur S., Oct. 1964: "Biological Use of Organisms Collected from Navigation Buoys" 106.1
  - Morrison, Dr. J. P. E., March 1966: "Collecting in the West Indies" 120.3
  - Porter, Hugh J., October 1967: "Notes on the Molluscan Fauna off the Coast of North Carolina" 135.2
  - Robertson, Dr. Robert, October 1965: "The Biology of Pyramidellid Gastropods" 115.2
  - Turner, Dr. Ruth D., Oct. 1966: "Shipworms & Piddocks -- Are They Really 'Boring'?" 125.1
  - Tursch, Dr. Bernard, Feb. 1965: "Collecting in Brazil" 109.3
  - Wilson, Dr. Barry, Feb. 1965: "Shell Collecting in Western Australia" 109.3

  - *GUEST SPEAKERS, No Summaries in NYSC NOTES:
  - Anderson, Sid R., Dec. 1966: "Collecting at Old Providence Island, Columbia, S. A."
  - Bosch, Dr. Donald T., Jan. 1965: "Shell Collecting in Muscat, Oman, Arabia"
  - Clench, Dr. William J., May 1965: "Some Factors in the Ecology of the Mollusca"
  - Morrison, Dr. J. P. E., Jan. 1968: "Life Histories of Mollusks"

New York Shell Club (continued):
    Member on TV 126.7
    Roster, complete 148.9
    Roster, supplements to:
        103.10, 108.10, 118.9,
        128.8, 133.10, 138.9
    Thoughts on (NYSC) Collectors and Students 133.2

Obituaries:
    Pedro de Mesa 126.1
    A. E. Salisbury 117.6
Oysters:
    Aelianus re: pearls 140.5
    Off-bottom seed production in Chesapeake 150.3

Paleontology in Molluscan Systematics, The Role of 150.5
Pesticides:
    Use of Sodium arsenite 137.3
    In Marine Environment 148.6
    Trace can kill 117.7
Philadelphia Academy Mollusk Separates (list) 116.2
Pilsbry, Dr. H. A., On a Brief Correspondence with 140.2
    First Shell Paper 114.3
Poems:
    "Those Good Old Latin Names" (Levine) 103.6
    "It is Nassariusly So!" (Van Housen) 116.7
Pollution, Oil, Concerning 149.2
Prosobranchs:
    Key to radulae (illus.) 106.3
    Summary of lecture on 104.6

Radulae, Key to Prosobranch 106.3
Reproduction in:
    Abalone 143.5
    Epitonium rupicola 107.7
    Littorina saxatilis 144.3
    Odostomia 115.2
    Sphaerium 113.4
    Siphonaria 120.3
REVIEWS:
    "British Bivalve Seashells" by Norman Tebble 129.3
    "Carnival Under the Sea" by Dr. R.L.A.Catala 102.4
    "Chicoreus sensu stricto and Chicoreus (Siratus)" by E. H. Vokes (illus.) 116.3

Reviews (continued):
    "Crassinella, Studies on..genus in NW Gulf of Mexico" by H. W. Harry 131.3
    "Guide for Identification Snail Hosts Schistosomiasis in the Americas" 149.4
    "Invertebrate Collections: Trash or Treasure?" by W. K. Emerson & A. Ross 123.4
    "Invertebrates, The; Vol. VI, Mollusca I" L.H.Hyman 137.2
    "Keys to Marine Invert. of Woods Hole Region" ed.:Smith 105.3
    "Leaflets in Malacology" by S. Stillman Berry 104.3
    "Marine Shells of the Pacific" by W. O. Cernohorsky 138.2
        Errata 141.1
    "Pandoridae, The Family, in the Western Atlantic" by Boss & Merrill (JOHNSONIA) 110.3
    "Recent Mollusca, The, of A. A. Gould" by R. I. Johnson 104.3
    "Sea Brings Forth, The" by Jack Rudloe 143.3
    "Sea Shells of the World, with Values" by A.G.Melvin 124.3
    "Selected Seashells of..World in Color", Vol.II by Tokio Shikama 104.5
    "Shell Collecting, An Illustrated History" by S. P. Dance 124.2
    "Shells of Japan" by Chiye Oshima 142.2
    Sowerby's 1879 section Murex reproduced 134.2
    "Tellina (Part II) & Tellidora, The Genera" K. J. Boss 143.2
    "Tellinidae, The Subfamily, in Western Atlantic" Boss 143.2
    "Teredinidae, A Survey & Illus. Catalogue of" Turner 122.4
    "Turridae, The Family, in Indo-Pacific" A.W.B.Powell 102.3
Say, Thomas, publication 134.6
Shell Shows, Florida 132.3
Shipworms and Piddocks 125.1
Sowerby's Thesaurus & Western Atlantic Mollusks 138.3
Sunken Ships, Shelling From 118.5
Surf Clam Fishery, The 150.11

Tools, Indian artifacts 146.6
Taxonomic terms, satirical definitions of 143.7
Tropical Fish Stores, Mollusks in 101.5

Wood-boring mollusks 125.1
    Sodium arsenite for control of 137.3

Zoogeographic Studies, The Value of 130.5
    (See also articles by
      Parodiz, 144.4
      Sicardi, 150.7)

LOCALITY INDEX

Australia, Victoria:
    Gippsland Lakes... 112.4
    Mildura (River Murray) 127.3
    Western Port Bay 105.7
    Wilson's Promontory (Checklist) 149.5

Bahamas:
    Eleuthera (map, checklist) 108.6; 121.4
Borneo, Collecting in Limestone Caves (Ill., checklist) 125.5

California, Los Angeles 122.3
Caribbean:
    Antilles, Lesser: Black sand beaches 110.4
    Antilles, Netherlands 134.3
    British West Indies:
      Grand Cayman (checklist) 127.5; Little Cayman (checklist) 139.5
    Grenadines 138.5 (Bequia)
    U. S. Virgin Islands:
      St. John (checklists) 106.6, 115.4
      Water Isle 105.6
Chile, Shelling in (annotated checklist) 101.6, 102.6

Florida:
    Big Pine Key, Land Shells (map, checklist) 110.5; errata 111.8
    Everglades, Liguus 109.7
    Key Vaca (marine), (map, checklist) 126.3

Hawaii (inc. endemic sp.) 129.5

Italy (The Lido), (checklist) 128.4

Mediterranean, Eastern 147.7
Mexico:
    Cholla Bay (checklist) 118.2
    Sea of Cortez " 109.4, 135.5
    Sonora " 141.5
    Vera Cruz, south of 122.6
    Yucatan, land sp. (ill.) 120.5

New York: (Marine)
    Little Peconic Bay, L.I. 125.3
    Ward's Point, S.I. (list) 102.2
    Wintertime in NYC area 132.5
New York: (Land & freshwater)
    Rockland Lake, Observ. 114.7
North Carolina, Offshore 135.2

Portugal (checklist) 145.3

Singapore 139.2
Spain (checklist) 145.3

Texas, Corpus Christi Mtg. 146.1
Trinidad 102.5

U. S. S. R.: Malacological Notes on Trip to 130.4
    (See also Rapana, generic index)
Uruguay, The Influence of Marine Currents on the Molluscan Fauna. (checklist) 150.7

SEE ALSO listings under: New York Shell Club: "Field Trips"; "Guest Speakers"

AUTHOR INDEX

(Selected listings)

NEW YORK SHELL CLUB NOTES, Nos 101 - 150

Abbott, R. Tucker: New England's Rarities, 1672 124.5
Aelianus (Excerpts):
  On Pearls 140.5; *Pinna* 117.3
Antonowitz, Willie R.:
  Listen to the Shells! 128.2

Cowles, Edward F.:
  Shell Symbolism in Ancient Mesoamerican Art 103.7
Cowper, Francis: News from Heacham (Law re: *Mytilus*) 141.3
Cusumano, Vincent:
  Color Variations in *Cypraea pantherina* 118.7
  Food Thoughts on Mollusks (NYC area) 124.6

D'Attilio, Anthony:
  Books from Japan on Mollusks 115.3
  Favartia tetragona (ill.) 120.4
  Hirase, Yochiro; Japan's First Conchologist 108.4
  Homalocantha scorpio (ill.) 106.5
  Intertidal Collecting near Los Angeles (ill.) 122.3
  Murex banksi Sow., Note on Distribution of (ill.) 125.2
  Murex barclayanus, A Rare Species (ill.) 126.2
  Murex longicornis Dunker, On the Generic Affinities and Synonomy of (ill.) 132.6
  Muricidae, Caribbean, Remarks on (ill.) 142.3
  NYSC Collectors and Students, Thoughts on 133.2
  Paleontology in Molluscan Systematics, Role of 150.5
  Poropteron, Observations on the Genus (ill.) 123.5
  Strombus (Tricornis) oldi Emerson (ill.) 116.5
  Zoogeographic Studies, The Value of (illus.) 130.5
de Mesa, Pedro: Shelling from Sunken Ships 118.5
Dodd, William E.: A Graveyard in Madagascar 107.4
Dunn, Roger: Whatisa... 143.7

Eddison, Grace G.: Shelling in Chile (with annotated checklist) 101.6, 102.6
  Water Isle (V.I.) Shelling 105.6

Feinberg, Harold S.: Observations at Rockland Lake, N. Y. 114.7
  Tropical Fish Stores, Mollusks in 101.5
Fuldner, Mansfield C.: Shell-of-the Month, *Cypraea zebra* 131.4

Garrad, Larch S.: Strandline Shelling in the Eastern Mediterranean 147.7
Germer, Dorothy: Shelling in Other People's Fish Bowls 123.7
  Shelling in the Sea of Cortez (checklist) 109.4
  Return to the Sea of Cortez (checklist) 135.5

Hulswit, Mart: Do You Own an Antiquarian Publication on Shells? (Proposal to register) 133.5

Jacobs, Dr. Walter H.: The Formation of the New York Shell Club (Reprint NOTES 28.4) 148.1
Jacobson, Morris Karl:
  Alexania floridana (ill) - A Little Known Tidal Mollusk from the South 123.3
  AMU Newsletter: Notes on History of Annual Reports 148.7
  Cepea nemoralis, The Lost Colonies in Rockaway, N.Y. (ill.) 119.5
  Conchology in N. Y. Area, Notes for a History of 113.7
  Crassinella, A Rare Shell in N. Y. Area 131.3
  Double-drilled Clams (ill.) 111.5
  Drilled *Spisula*, Placement of *Polinices* holes (ill.) 140.6
  Drilled *Spisula*, More on (ill.) 142.5
  Earliest American Conchology (Say) 134.6
  Fossil Venus Clams in Rockaway, N. Y. 141.2

Jacobson, M. K. (continued):
  Haliotis pourtalesi, Mass Discovery off Havana 145.2
  Land Shells of Big Pine Key, Fla. (map, checklist) 110.5
  Errata 111.8
  Land Shells Collected by Edw. Cowles from Mayan Ruins in Yucatan (illus.) 120.5
  Lymnaea pseudopinguis, Endemic Sp. from L. I. 137.4
  Mollusks and Literature 146.3, 147.4, 148.3
  Pilsbry's First Shell Paper 114.3
  Pilsbry, Dr. Henry A., On a Brief Correspondence 140.2
  Prosobranch Radulae, Key to (illus.) 106.3
  Prosobranchs, Summary of Lecture on 104.6
  Rapana in Black Sea 138.4
  Strombus gigas, How Fast Does (It) Grow? 121.5
  Ward's Point, Staten Island, Shells of 102.2
  Xancus or *Turbinella*? 103.9
Jensen, Dorothy:
  Aspella (*Favartia*) *angermeyerae* 116.4
  Eleuthera, The Pink Sands of (map, checklist) 108.6
  Eleutheran Waters, From 121.4
  Fastigiella carinata, Little Known Species (illus.) 128.6

Kline, Mary:
  Shelling in a Different Language (with glossary) 123.8

Leibowitz, David:
  Observation of *Sphaerium* in Bklyn Botanic Garden 113.4
Levine, Stanley:
  Those Good Old Latin Names! 103.6

McCaa, Helen: Shelling at New Kino Bay, Sonora, Mexico, Gulf of California (checklist) 141.5
Murray, Anne Firth: Shell Collecting at Singapore 139.2

Myhre, Dot:
  Mexico, Anyone? 131.5

Old, William E.:
  Acmaea bombayana (illus.) and *Clypidina notata* (") 119.3
  Florida Shell Shows 132.3
  Hemitoma ostheimerae Abbott (illus., bibliog.) 121.2
  Katsaras Auction 1966 124.7

Parodiz, Juan J.: Geographical Distribution of Mollusks 144.4
Pequignot, Leon S.:
  Everglades *Liguus* Hunt 109.7

Raeihle, Dorothy:
  Chaetopleura apiculata 114.8
  Chitons, Concerning Captive 131.7
  Conservation, Concerning 121.6
  Epitonium rupicola, An Observation of 107.7
  Haminoea solitaria, Giant 137.7
  Littorina saxatilis Olivi, An Observation of 144.3
  Murex brevifrons and *Voluta musica*, Feeding Habits of Captive 134.5
  Neosimnia, Care of Captive 148.5
  Neritina reclivata and *Littorina irrorata* (Obs. of captive) 112.6
  September Shelling Finds -- *Chaetopleura* & *Busycon* 125.3
  Shelling Interludes at Corpus Christi's AMU Meeting 146.1
  Strombus alatus, Note on 119.7
  Winkle Walk 112.7..Again 113.8
  Wintertime Shelling in the New York City Area 132.5
Ropes, John W.:
  The Surf Clam Fishery 150.11

Saul, Mary: Shelling in the Limestone Caves of Borneo (illus., checklist) 125.5
Schroth, Marian: Busiest Day 105.4
  Ecology 133.6
  The Family Littorinidae 117.4
Seamon, Neal and Eva:
  Hawaii, Shelling in 129.5
  Key Vaca, Offshore..with Dredge & Snorkel (map, list) 126.3

NEW YORK SHELL CLUB NOTES No. 101 April 1964

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The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MAY 10th, 1964, at 2:00 P. M.

PROGRAM: * COLLECTING SHELLS IN THE COOK ISLANDS IN 1962
by Richard W. Foster. (With color slides)
THE SHELL AND THE SERPENT: THE RIDDLE OF QUETZALCÓATL
by Edward Cowles. (With color slides)
PROSOBRANCHS by M. K. Jacobson
DISCUSSION OF PLANS FOR FIELD TRIP

These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR. Notify Corres. Sec'y of any change in address.

* PROGRAM NOTE

We are pleased to announce that we will have as our guest on May 10th Richard W. Foster, Associate in the Department of Living Invertebrates, Museum of Comparative Zoology, Cambridge, Massachusetts. Mr. Foster has done considerable field work for M. C. Z., including extensive collecting in the Indo-Pacific area, and has obtained an amazing number of specimens for their collection. As he is in the field so much of the time we are fortunate that he is able to visit us next month.

A "THANK YOU" TO OUR MEMBERS

Our auction was successful beyond all expectations, and YOU did it! You gave such an example of willing cooperation that the New York Shell Club is bursting with pride! You sent shells by mail and by messenger, you brought shells to the meetings and to the studio -- and then bid freely during the auction. Your enthusiasm was so contagious that one bidder, after a puzzled moment, realized that he had won a shell that he himself had donated!

A young lady remarked that there were more shells there than she'd ever seen outside of a museum -- truly, there was something for everyone: The

high bids of the day were for the antique "Sailor's Valentines". The high for a single shell was $11. The low was a requested donation of 2¢ per sheet of the plastic foam stacked on the bargain table. (Whoosh! and it was gone!) One of the more novel items was a hat of fashionable blue (our local blue mussels) that was admired even by the men -- which proves it was chic.

Your wonderful contributions, first of the material and then for the material, more than assures our exhibit of New York shells in our museum. We do not yet have the net -- that report will come from our happy treasurer at the May meeting.

The Club is grateful to Dorothy and Norman Jensen, who generously gave the use of the studio, to our expert auctioneer Anthony D'Attilio, to President Bill Old and to the many other volunteers who also worked before and during the auction to make the project a success. Among these unassuming volunteers were the ladies (God bless 'em) who joined with Marion Burger in her proposal to bring homemade cakes for refreshment -- the most delectable assortment was thoroughly appreciated during the coffee break.

ANNUAL FIELD TRIP

Our Club's next special event will be the field trip to Ward's Point, at the southern tip of Staten Island. (The date is yet to be arranged.) It has been several years since the Club visited this unique area to collect, among other things, Epitonium rupicola, the Purple Wentletrap. A trip to this particular beach at this time is considered most important, as this section is scheduled for an improvement which will probably completely destroy the naturalness of this bit of shoreline which is one of the very few stretches of beach in our metropolitan area to have so far escaped the encroachment of progress.

MOST BEAUTIFUL AND UNUSUAL SHELLS IN NEW EXHIBITION

A striking new exhibition of some of the world's most beautiful and unusual shells opened to the public March 31st at the American Museum of Natural History. Named the "Evelyn Miles Keller Memorial Shell Exhibition", the display is the gift of Dr. Franklin J. Keller of New York City in memory of his late wife, a collector of shells and a student of malacology.

More than two hundred examples of shells in a rich variety of shapes, colors, and surface patterns are included in the exhibition. Dr. Emerson said, in discussing the new exhibition, "We have selected for this exhibit representatives of each of the six classes of mollusks, not only to show the great diversity of the shells, but also to indicate some of the widely differing forms of respiration, locomotion, growth, and feeding mechanisms in these animals." Full scale models of a number of complete mollusks show how these animals appear in life.

Among the exhibited shells most highly prized by collectors is Cypraea aurantium, the beautiful Golden Cowrie. There is also a superbly fashioned model of the rare gloriamaris, the Glory of the Sea Cone. The delicate colors and intricate pattern of the one treasured specimen in the Museum's research collection have been perfectly matched in the model.

The exhibition is located on the first floor of the Museum, in the alcove

to the west of the seventy-seventh Street entrance.

AMNH PR Dept.3-24

NOTE TO ABOVE: Make it a point to see this beautiful exhibit the next time you are in. It is just a few steps to your left as you enter from Seventy-seventh Street.

You will be interested to know that the beautiful model of Conus gloriamaris was painted by Anthony D'Attilio, as were the half-dozen water colors -- of Monoplacophora, Atys, hinge of a bivalve, etc.

AN ANNOUNCEMENT

We take pride in the announcement that NYSC members Anthony D'Attilio and M. K. Jacobson have recently been appointed Associates in the Department of Living Invertebrates in recognition of their advanced knowledge and continuous work with the Museum in the molluscan field.

AMERICAN MALACOLOGICAL UNION, 30th ANNUAL MEETING

The 1964 annual meeting of the American Malacological Union will be held in New Orleans July 21 - 24. Headquarters will be the Sheraton-Charles Hotel, 215 St. Charles Avenue, providing lodging, free parking for registered guests and air-conditioned meeting rooms. Bedrooms are 100% air-conditioned, with TV and radio in each room. Rates: single $7.50 to $12.60; double (twin beds) $12.85 to $16.50; extra rollaway in room $2.50. Reservation must be made in advance and directly with the hotel.

The hotel is within easy walking distance of the famed French Quarter... New Orleans abounds in fine eating places...There is a good restaurant in the hotel and a cafeteria across the street...The banquet will be served at Arnauds, one of the city's world-renowned French restaurants. The entree will be excellent trout amandine or fine chicken meuniere. Cocktails (optional) prior to dinner. Coat and tie, please! Cost: $5.00 per person.

Added attractions being planned are a FIELD TRIP to the Gulf Coast to collect land and marine molluscs (bus fare about $2.50, box lunch extra), SHELL CLUB NIGHT at which time the AMU member shell clubs provide entertainment, CITY BUS TOUR of beautiful New Orleans ($2.75) and a RIVER BOAT PARTY on the final night, under a full moon. No charge other than for refreshments. (Where else can you do all of this for so little?)

Those planning to present papers are urged to send details (title, time required, equipment needed) to President John Q. Burch, deadline May 15. Anyone attending the meeting is asked to send the information requested in the form below to Dr. Dundee, also by May 15. It may seem a bit early to choose between chicken or trout, but the restaurant insists that advance information is necessary to ensure perfection!

. . . .

I plan to attend the AMU meeting in New Orleans and will___ will not___ be staying at the hotel. There will be___ in my party and (I) (we) will attend the following: Field Trip___ City Tour___ River Boat Party___ Banquet___. (If attending the banquet please check choice of entree below: trout___ chicken___ box lunch for field trip___) Signed______________

Please send the above information to Dr. D. S. Dundee, Dept. of Biology, LSU in New Orleans, New Orleans, Louisiana 70122.

PACIFIC DIVISION, AMU, 17th ANNUAL MEETING

The 1964 annual meeting of the Pacific Division of the American Malacological Union will be held at Asilomar, Pacific Grove, California, June 18 - 21, and any easterners able to attend will be warmly welcomed. For information write to Lucille Zellers, 714 Elm Street, El Cerrito, California 94532.

BOOK REVIEW

"Selected Shells of the World Illustrated in Colours" is the newest book from Japan devoted to the interests of shell collectors. It is a sumptuous and very handsome volume displaying on its 102 plates in color many hundreds of shells to be found around the world. The plates are followed by 126 pages of text in Japanese, interspersed with an additional 211 illustrations in black and white photography. Titles to the illustrations and an index are in English. The book is of large size, 7½ by 10½ inches, and the color reproduction is of superb quality. Familiar Florida shells appear side by side with exotic Indo-Pacific species. Of special interest are two plates devoted to 6 species of Pleurotomaria, including the recently described *Pleurotomaria schmalzi* Shikama 1961.

The species in this volume are entirely of gastropod shells (Prosobranchia) but a second volume, earmarked for publication soon, is to include all other groups of mollusks not dealt with in the first volume. The authors are Tokio Shikama and Masuoki Horikoshi, and the book may be purchased for $25.00, postage included, directly from Japan.

The publisher is:
Hokuryukan Publishing Co., Ltd.
No. 55, 1 Chome, Jimbo-cho, Kanda
Chiyoda-ku, Tokyo
Japan

. . A. D'Attilio

TO COLLECT THE FLORIDA LIGUUS

We took off from the loop road for Big Doctor Tiger's Hammock, in the Central Plains area, via air boat. The guide thought there would be enough water to go this way, as it is too far to go by buggy. We launched the boat in the canal and took a narrow water trail through the cypress. We got stuck once in this channel but wiggled loose and soon hit the open sawgrass country. We went about five miles and in trying to get to a hammock ran onto ground that was devoid of all water. All seven of us got off and shoved and wiggled the boat trying to reach water ahead, but soon abandoned the attempt and anxiously looked back toward our old trail. During this operation Dan and Beulah got in the propeller wash and were knocked flat in the mud. After much wallowing around we got back in a little water and took our back trail to our port of embarcation. Beulah was wrapped up in a blanket, as the weather was cold and wet. She indeed reminded one of the shades of Chief Dr. Tiger.

We loaded the air boat back on the trailer and took off for Trail Center, where the guide kept his swamp buggy. We ate our picnic lunch at Trail Center, then took off for another hammock. We encountered no trouble on this jaunt. The hammock visited was populated by a hybrid colony, which was all right with me as I got several interesting mutations of various forms. We got back to Trail Center about 4:30 and arrived home at Marathon about 7:00 P. M.

. . . Lee Pequignot

MOLLUSKS IN TROPICAL FISH STORES

By Harold S. Feinberg

The October 1958 (#45) issue of "New York Shell Club Notes" featured a fascinating article by Morris K. Jacobson entitled "Collecting Shells in New York Fish Markets". The latter part dealt with shells in aquariums. As there have been many changes in the aquarium trade including snails, I thought that I would bring this subject up to date.

The following species were noted in a couple of the larger aquarium supply stores, recently except where noted:

Mystery Snails: Pomacea cuprina, Pomacea paludosa Say, and a single Viviparus georgianus wareanus Kuster. The real Mystery Snail is the South American P. cuprina which is useful in aquariums as a scavenger. P. paludosa Say, from Florida, is a voracious plant eater and is distinguished from P. cuprina by the absence of a channel at the suture. This Viviparus, common from Florida, was probably collected with the P. paludosa Say, which it superficially resembles.

Cornucopia Snails include both Thiara sp. (?) from South Asia (?) and Goniobasis floridensis Reeve from Florida. As Goniobasis occurs in moving rivers and streams it doesn't do well in still-water aquariums.

The Columbian Ramshorn is Marisa cornuarietis Linné and was formerly placed in the genus Ceratodes. This tropical snail has been found living in south Florida in recent years and is known in the shell shops as the "Miami Snail".

The last operculate on this list is the common brackish water Neritina reclivata Say. These Nerites seem to do quite well in fresh water aquariums.

The Red Ramshorn is Planorbis corneus Linné var. rubra. They are tank raised for bright red color from European stock.

Tropicorbis sp. (?) is being sold in northern stores in recent years. This tropical genus of planorbids is found from Louisiana and Texas south and has been sold in southern pet shops for many years.

Pond snails of the genus Physa are the old stand-bys for aquariums. As the local Physae do not do well in warm water tanks the stock is either tank bred or of southern origin.

The fresh water limpets of the genus Ferrissia are not actually sold but are common in aquariums nevertheless. Either the eggs or young are introduced on aquatic plants and soon the glass sides of the tank are almost covered with limpets.

Fresh-water Clams are used to "purify the water". The aquarium water is drawn through the siphons and "purified" as it is strained through the gills. The species now being sold belong to the Elliptio cunningham Philippi complex and were collected in the Florida lake region.

In cold water aquariums and fish ponds both Lymnea auricularia Linné and Viviparus chinensis malleatus Reeve are found.

In a Marine Aquaria department a Lima was being offered for ten dollars.

CONUS GLORIAMARIS: Three beach specimens of this rare cone have recently been collected, two from Rabaul, New Britain and one from Teop Island, Bougainville. They measure 3 3/8", 4 5/8" and 5 1/2" respectively. Two of the specimens are now in the ANSP collection. (Hawaiian Shell News)

Part One of
Two Parts:

SHELLING IN CHILE

By Grace G. Eddison

Our trip to Chile last summer was really for the purpose of skiing. But we were "snowed out" and so headed for a small coastal village approximately 150 kilometers north and west of Santiago. As it turned out this was our driver's native village and his grandmother owned nearly all the land, including 15 miles of beach. We were told that the only way to get into these beaches was by horse -- I groaned, for I had not been on a horse, I calculated, for 23 years, and my 9 year old son had never been on one. He of course took to it like a native and was soon racing the Chilean cowboys across the open land; not so with me. However, we took three trips on horseback, two of which were after 12 days of skiing in the Andes at about 13,000 feet.

Los Vilos was our base. The first collecting area embraced Chungo and Conchali, next to each other and five and six kilometers, respectively, north of Los Vilos. The last trip was a two hour horseback ride five kilometers south of Los Vilos, to La Cachina. I want to stress the difference between these two collecting areas, for although nearly all the species were found in both places the very large specimens were to be found only at La Cachina -- the inaccessible area. This had nothing to do with animal preference but was a reflection of the native search for food. Nearly all these mollusks constitute the main diet of the natives and are, I found, extraordinarily good in their chowders and special dishes.

Excellent, too, was the six month old kid (baby goat) butchered the night before by the head peasant, seasoned and cooked over the open fire at the shore. I had by this time lost all fear of strange food, having been served the day before tea made in an old black tin can, hard-tack bread and goat's cheese from a tired old cloth saddle bag. We never got sick! I might mention one word about the peasants: There appears to be a well established caste system. The chief peasant, Perrucho, worked for my driver's grandmother. He could talk to me freely (I understood not a word except "claro") and he was the only one allowed to serve me. (David and I had to finish completely before the others could eat.) There were others below Perrucho who were not allowed to even look at me directly.

All of the shells I collected myself came from these areas, Chungo - Conchali and La Cachina. The coast line itself has a few long white sand beaches but consists mostly of a rocky shore with rocky promontories extending out to sea.

I also have shells which were deep dredged. These were given to me by Dr. Harvey McMillin, a physiologist stationed with the U. S. Aid Mission in Santiago. He has been setting up canneries up and down the coast of Chile and saving specimens of shells which have come up in the deep dredge nets. His shells have come from the Coquimbo area, two or three hundred kilometers north of Los Vilos, and the Puerto Montt area in the extreme south of Chile.

I brought home approximately 51 species from 15 families of marine Gastropoda (approximate, as not all have been fully identified as yet); 14 species from 8 families of Pelecypoda (bivalves); 1 fresh water species; and 1 specimen of Brachiopoda. Dr. Tucker Abbott identified most of the specimens. Bill Old has filled in several gaps. The simplest method

for presentation seems to be to present the shells in phylogenic order, i. e. the simplest animal first, much as they are in Dr. Abbott's "American Seashells":

GASTROPODA

FISSURELLIDAE

Fissurella maxima Sowerby is the largest (5 to 6 inches) and the most common of the keyhole limpets. When cleaned it has beautiful maroon and cream rays. The animals of this family form a large part of the native diet. They are three to four times the size of the shell and can be loosened from the rocks only by a crowbar! The small specimens found at Chungo are difficult to take as they are fragile and wedge themselves into deep narrow crevices in the rocks. Many of them are irregularly shaped, taking the form of their particular crevice.

Fissurella costata Lesson is again a fairly large limpet. When fully mature it is round though the juvenile specimens are oval. It has light brown and cream rays and is usually covered with a beaded and ribbed calcareous deposit for which it was probably named. Synonymous with this species is Fissurella latus which does not have the calcareous deposit.

Fissurella nigra Lesson grows nearly as large as F. maxima but is much less common. The adult specimens are a deep purple and the juveniles (if they are indeed juveniles of this species) are rayed.

Fissurella crassa Lamarck is the last of the large limpets collected and is the most easily distinguished by the interior rugose pink folds around the callus of the hole. The exterior is a rich brown. This is the only keyhole limpet found which bore the scar of another limpet, Scurriea parasitica. The juvenile shells are exceedingly fragile and difficult to take, with the result that I came home with relatively few specimens.

ACMAEIDAE

Patinigera aenea Gmelin is one of the most beautiful of the Acmaeidae. The exterior is eroded or has dull brown and black narrow rays. The interior has a rich opalescent sheen, brown, steel gray or white -- plain, striped or rayed. The apex is a deep chocolate brown. The shell may be round and very deep, or oval and flat, and all stages in between in the same locality. These are not found in Los Vilos but in Puerto Montt and Coquimbo.

Scurria zebrina Lesson is one of the most common and is the most difficult to get without chipping the edges. One learns very quickly to "sneak up" on the animal and slip the knife underneath it before it senses you're there. Can't be done with S. zebrini. It sits so close on the rock that a knife does not fit under it, and at the first touch of the blade it completely seals itself to the rock without a crack showing. Again there is a great variety in size, shape and coloring. The interiors are mostly white with a blue-green cast. The apex is usually brown, though it may be white. The exterior when not eroded has a handsome black and cream zigzag pattern. This was the only member of the Acmaeidae family found with the scar of Scurria parasitica.

Scurria parasitica Orbigny is the limpet which lives on other shells. I found them on three different species: The large ones were on Fissurella crassa, the small pink-tinged ones were on Tegula atra and the others, varying in size and shape, were on Scurria zebrina. Again the color and

pattern is variable -- they are essentially a white shell with brown rays.

Scurria scurra Lesson is a not too common shell. It has an arched base as it is washed in on kelp from deeper waters. It is conical and white. There is a finely ribbed form which came from Coquimbo and may be a different species.

Patelloidia araucana is one of the most common species and the most frustratingly variable -- if indeed they are all the same species. Some are ribbed, some smooth, some blue and some white on the interior. The exterior is either eroded or has a fine black and white pattern. Specimens from collecting areas other than mine did not have the coarse ribs.

Patelloidia leucophaea is again a very common limpet closely resembling our *testudinalis* though very dark in color.

Patelloidia viridula Lamarck, flat, whitish tinged with green, came from the Coquimbo area.

TROCHIDAE

Tursicula bairdii Dall is to me the most exciting of all the shells. It was dredged off Coquimbo in 800 meters (2,640 feet). Dr. Abbott identified it from specimens in the Academy's collection but there are some interesting differences. The species has not been previously recorded from so far south, and these specimens have a brown periostracum whereas all others are green. It actually resembles Dall's illustrations closer than do the other specimens.

Tegula atra Lesson is very common, with a size range from a few millimeters to three inches. The large ones are considered quite a local delicacy. The shells have the scars of *Scurria parasitica*.

Tegula tridentata Potiez and Michaud is a small shell about one centimeter in breadth. It is almost completely covered with a calcareous deposit and distinguished by three small teeth in the aperture. Only six specimens were found intermixed with the common *Prisogaster niger*.

Diloma nigerrima reaches up to one inch in size. I found only one specimen though it is apparently more common in the northern areas.

TURBINIDAE

Prisogaster niger Gray is a very common little black turbo with a stony white operculum. Sizes collected range from one millimeter to one inch.

LITTORINIDAE

Littorina peruviana Lamarck is a very handsome, smooth, black *Littorina* with white zebra stripes. The older specimens are completely eroded, their coarse brown shells bearing little resemblance to the juveniles.

Littorina araucana is a very small species, maximum height about five millimeters. It is gray blue and not so common. Likes the rocks just above high tide line.

TURRITELLIDAE

Turritella cingulata Sowerby is a black and white striped *Turritella*. Only beach specimens have been found in central Chile.

(To be concluded)

NEW YORK SHELL CLUB NOTES No. 102 May 1964

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR. Notify Corres. Sec'y of any change in address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JUNE 14th, 1964, at 2:00 P. M.

PROGRAM: PROSOBRANCHS by M. K. Jacobson
CYPRAEA ROSSELLI, Shell-of-the-Month by William Old
REPORTS ON THE FIELD TRIP by members

ANNUAL FIELD TRIP AND OUTING JUNE 6th

Our 1964 field trip will be to Ward's Point, Staten Island, on June 6th. There will be a low tide of -0.2 at 11:12 A. M. Daylight Saving Time. Members should plan to be there between 9:30 and 10:00 A. M. Allow about an hour and a half travel time to reach the area.

For those who are driving: From the ferry terminal at Saint George take Bay Street to Hylan Boulevard. Go south on Hylan Boulevard all the way to the southern tip of Staten Island. The Conference House will be on your right, a picnic pavilion straight ahead facing the water. Go down to the beach and turn left to the shelling area.

For those using public transportation: At the Saint George ferry terminal take Bus #103, Tottenville. Make sure the bus sign designates Tottenville, as some of the buses on the #103 line do not go that far. Tell the bus driver you want to get off on Hylan Boulevard at Ward's Point -- before the bus turns in to Tottenville. Check for the landmarks mentioned above.

Bring your lunch, and containers for your collecting. A thin sheet of plastic might come in handy if you plan to work the shell drifts. Wear old clothes and sneakers or old shoes that can take a beating.

This stretch of shore has always been unique. It is important to us now to survey the fauna before the natural conditions are altered by coming improvements.

SHELLS OF WARD'S POINT, STATEN ISLAND

Time ran out at our May meeting before we could discuss the Ward's Point area in preparation for our field trip. But at least here we can whet your appetite with a list of shells that have been found here and, marked with *, shells that should be there but have not yet been found:

ACMAEIDAE: *Acmaea testudinalis
LACUNIDAE: *Lacuna vincta
LITTORINIDAE: Littorina littorea (dead only), *L. saxatilis, *L. obtusata
HYDROBIADAE: *Hydrobia minuta
ASSIMINEIDAE: *Assiminea modesta (on pilings)
CERITHIOPSIDAE: *Cerithiopsis greeni
TRIPHORIDAE: Triphora perversa nigrocincta
EPITONIIDAE: Epitonium rupicola (best shell found there!) *E. humphreysi
PYRAMIDELLIDAE: Odostomia trifida, Turbonilla winkleyi
CALYPTRAEIDAE: Crepidula fornicata, C. convexa, *C. plana
NATICIDAE: Polinices duplicata *P. heros, *P. triseriata
MURICIDAE: Urosalpinx cinerea, U. cinerea atkinsis, Eupleura caudata
COLUMBELLIDAE: Mitrella lunata
GALEODIDAE: Busycon canaliculatum, *B. carica
NASSARIIDAE: Nassarius obsoletus, N. trivittatus (rare), N. vibex
BUCCINIIDAE: *Buccinum undatum (if you're lucky!)
NUCULIDAE: *Nucula proxima
SOLEMYACIDAE: *Solemya velum
ARCIDAE: Arca ovalis, *A. transversa
MYTILIDAE: Mytilus edulis (plus pellucidus), Brachidontes demissus, *Modiolus modiolus.
PECTINIDAE: Aequipecten irradians
ANOMIIDAE: Anomia simplex
OSTREIDAE: Crassostrea virginica
ASTARTIDAE: *Astarte castanea, A. undata
CARDITIDAE: Venericardia borealis
CARDIIDAE: Laevicardium mortoni
VENERIDAE: Venus mercenaria (plus notata), Gemma gemma (plus manhattensis), *Pitar morhuanna
MACTRIDAE: Spisula solidissima (rare), Mulinia lateralis
TELLINIDAE: Tellina agilis, *T. versicolor, Macoma tenta
SOLENIDAE: Ensis directus
Additional bivalves: Mya arenaria, *Cyrtopleura costata, *Barnea truncata, *Pandora gouldiana, Lyonsia hyalina
Of the OPISTHOBRANCHIA: *Acteon punctostriata, Haminoea solitaria, Retusa canaliculata
Digging into an old log might yield *Teredo navalis.
And you might even find accidentally a fresh water shell: *Campeloma decisum!

. . . M. K. Jacobson

NEW PUBLICATIONS:

COQUILLAGES ESPÈCES DU MONDE ENTIER

Learning French? The French Edition of the Golden Nature Guide, "Sea Shells of the World", ("Coquillages Espèces du Monde Entier") is a faithful translation of Dr. R. Tucker Abbott's book by the eminent French malacologist Paul Henri Fischer. The color printing, done in Italy, is superior to that of the American edition. Copies (postage free) may be obtained for $1.95 from Robert T. Abbott, Jr., 40 Woodale Road, Philadelphia 18, Pa. (for his college fund). Airmail postage in the U. S. and its possessions add 50¢; airmail to Australia, New Caledonia, etc., add $1.10.

INDO-PACIFIC MOLLUSCA
Vol. I, No. 5. March 31, 1964:
THE FAMILY TURRIDAE IN THE INDO-PACIFIC
by A. W. B. Powell
Part 1 - The subfamily Turrinae

This paper represents a bold attempt to deal with, as the author says, "the largest family group of marine gastropods (occurring) from the intertidal zone to abyssal depths...in all seas, including the Arctic and Antarctic". Although he deals here with only those in the Indo-Pacific region, this area represents the place which has had "an explosive development" of the group and hence has huge numbers of species. As if this multiplicity of species and genera is not enough, there are other aspects that make it an extremely difficult family to survey. The shell form, aside from a "turrid sinus" on the outer lip -- which is absent in many forms -- varies greatly, and hence many Turris forms were originally assigned by Linné to Murex, Buccinum, and Strombus. The protoconch seems to be of great taxonomic importance, but unfortunately is not associated with the varying shell shapes. The radula ranges from what Powell calls a "prototypic" form, apparently related to the mesogastropod taenioglossate, to a true toxoglossate radula closely resembling that of Conus. It is of interest to us to note that in 1960 Robins showed that the English species of Mangelia -- and probably the local species as well (see SHELLS OF THE NEW YORK CITY AREA, p. 69) -- have a tiny toxoglossate shape "complete with the neurotoxic apparatus as well as a long proboscis capable of sufficient extension to harpoon prey" (p. 228). However, the radula itself cannot serve as a basis for division since, as Powell writes, "the toxoglossate dentition...appears to cut across any subfamily arrangement based upon the shell features alone... The inference is that the system of subfamilies at present in use is not morphologically sound". But it is the best we have. Nor is the operculum more than of "secondary importance since its shape is consequent to the shape of the aperture". The figures on page 231 show the varying operculum shapes and even demonstrate that, whereas most operculums have a terminal nucleus, others have the nucleus midway between the top and bottom (Pusionella). In short, we have here a bewilderingly complicated family to work with, and it is a tribute to the author that he nevertheless makes the group he deals with in the present monograph ("The subfamily Turrinae") clear to the careful reader.

These shells used to be called Pleurotomidae after Pleurotoma Lamarck, 1799, but that name has given way to the present family name based upon Turris Röding 1798.

The paper is enriched by some lovely color plates as well as numerous black and white photographs, many of fossil species. It is in every way a worthy addition to any shell library, and in view of the excellent printing, the magnificent illustrations, the thoroughness and completeness of its treatment, it is surprisingly reasonable in price.

MKJ

(To obtain "Indo-Pacific Mollusca" write to Dr. R. Tucker Abbott at the Academy of Natural Sciences, 19th & The Parkway, Philadelphia 3, Pa.)

PHYSIOLOGY OF MOLLUSCA

Announced by Academic Press, 111 Fifth Ave., New York, N. Y. 10003, Vol. I edited by Wilbur and Yonge, 473 pp., well illustrated. Price $16.00.

CARNIVAL UNDER THE SEA

by Dr. R. L. A. Catala

A most unusual and beautiful motion picture was shown recently at the Explorers Club in New York City. Dr. Rene Catala kept guests enthralled with the color film he had made of underwater sea life. Dr. Catala and his wife, Madame Catala Stucki, have a research aquarium in Nouméa, New Caledonia, and a great number of the species shown became known to science only by their efforts. There were the living corals, anemones, crinoids, sponges, starfish, sea worms, ascidians, fish, of course some mollusks, and many other strange and colorful creatures, all performing before the camera.

Publication of Dr. Catala's book, "Carnival Under the Sea", is scheduled for October, 1964. Format 21 x 27 cm., 140 pages including 27 color plates with the reproductions of 103 Ektachromes from Dr. Catala's collection, 31 black and white photographs, 44 drawings and a map. The price per copy will be only $10.00, or £3.10.0 Sterling. Advance subscription may be made by notifying Editions Sicard, 30, rue Joubert, Paris (9e), France and paying the subscription price into the bank of J. Henry Schroder Banking Corp., 57 Broadway, New York, N. Y. 10015. In England: J. Henry Schroder, Wagg & Co., Ltd., 145 Leadenhall Street, London E. C. 3. Subscriptions to be credited to the account of Messrs de Charnacé & Co., Paris, specifying that your payment is intended for Dr. R. Catala in respect to this book.

DR. JULIUS WISOFF

It is with great regret that we announce the passing of our Honorary Life Member, Dr. Julius Wisoff, on May 3rd. He was 71 years of age.

Dr. Wisoff became interested in shells about ten years ago. In that time he assembled an unusually fine collection. His specimens came from his own collecting in Rockaway Beach and Florida, and by means of purchase and exchange.

The Club is most grateful to him for his support of the NOTES at a time when we were finding it difficult to publish regularly because of a distressing lack of facilities. He bought us a mimeograph machine and for years kept us supplied with paper.

The Club mourns the passing of a devoted member, a fine person, and an enthusiastic shell lover. We send our deepest condolences to his wife and children.

mkj

RACHEL CARSON

The recent death of Rachel Carson leaves a void in the ranks of naturalists. It was through her books -- "Under the Sea Wind", "The Sea Around Us" and "The Edge of the Sea" -- that many of us first became acquainted with the life of the seas and their shores.

Miss Carson did not only describe -- she wrote with a quiet wonder and respect for the pulse of life in all creatures.

Her last book, "Silent Spring" was instrumental in bringing about moderating legislature concerning the use of pesticides.

SHELLING IN TRINIDAD

By Gordon Usticke

Port-of Spain, the capital of Trinidad, is a large and very busy city. A short drive from here, about half way to the American Base at Chaguaramas, there is Cocorite, a very good shelling locality for live shells that live in black oozy mud.

At low tide crawling on the mud are *Batillaria minima*, *Modulus carchedonius*, and a very black *Nassarius vibex* -- also many *Neritina meleagris*, a very prettily marked shell, extremely variable and very similar to *Neritina virginea*. On most stones can be found one or two *Thais haemastoma*, another very variable shell, some being quite smooth, others having one or two rows of nodules, occasionally quite large. The color and markings also vary greatly, some shells being plain orange. Close to the stones, but in the mud, are many small *Melongena melongena*, another black shell with one or more prominent white stripes; the very large *Melongena* seem to live in the mangrove swamp. The body whorl is smooth on some, and on others there may be one to three rows of spines.

Long tailed *Murex chrysostoma*, very dark in color, may also be found crawling on top of the mud. Almost completely buried in the mud, one can occasionally discern the faint form of the black conch *Pugilina morio* (up to five inches), with a very heavy thick brown periostracum. One may also find in a little deeper water *Fasciolaria tulipa*, including the solid brown colored shell, and *Murex pomum* var. *margaritensis*, which has a pretty pink or yellow mouth, with a big brown patch.

On the sea wall lives the rare *Thais trinitatensis* Guppy, a shell almost unique to Trinidad. It is usually so covered with barnacles that only its orange-colored mouth gives it away. When the barnacles are removed it is rather a good looking shell.

In shallow water in the mud is *Macoma constricta*, a thin shell with a very strong periostracum; also *Chione pectorina* (white interior) and a few *Chione granulata* with purple interior, and usually with pretty black markings.

A great many other shells can be found -- I have only mentioned the more prominent ones. Amongst others are *Anadara ovalis*, *Tagelus plebeius* (small), *Tellina martinicensis*, and a small pink or white Tellin I have not identified.

Proceeding about two or three miles towards Chaguaramas one comes to a sandy beach. Here are many *Chione granulata*, but *no Chione pectorina*, and a great many pink or white (occasionally peach) *Tellina simplex* (?), also a small round bivalve, with a grayish periostracum, that I don't recognise -- and many other shells.

DEALER IN SHELLS: Capt. Jack Wooster of the "Lampshell", P. O. Box 502, Manila, Philippine Islands, invites members to write for his list of Philippine shells -- marine, fresh water, and land. The few prices that were quoted in his letter are in order. Capt. Wooster writes: "Should 12 or more of you order together in a single order we can allow you a 30% discount....On all shipments for small lots we pay postal charge and will gladly refund your money if you are pleased with our offering....We have been in the shell business since 1923."

Part Two:
(Conclusion)

SHELLING IN CHILE

By Grace G. Eddison

(Part One of Dr. Eddison's report appeared in NOTES No. 101, April 1964.)

CALYPTRAEIDAE

Trochita radians Lamarck is an interesting genus, apparently living up and down the whole coast of Chile though I saw none in my area. I have one specimen about 6" high and 3½" across. Most of the specimens, however, are very much smaller than this and rather flat.

Crepipatella dilata Lamarck represents a rather varied group which probably are all the same species.

NATICIDAE

Polinices uber Valenciennes from Coquimbo.

CYMATIIDAE

Argobuccinum magellanicum Gmelin is a rather familiar species from Brazil. These specimens were dredged at 5 to 10 fathoms off southern Chile.

Argobuccinum argus Gmelin from southern Chile.

Argobuccinum scabrum King from southern Chile.

Argobuccinum rude Broderip is a small species with a lovely, hairy, rich brown periostracum. It was dredged off Coquimbo.

BUCCINIDAE

Austrofusus alternatus Philippi were dredged at 400 meters (1,320 feet) off Coquimbo. The larger specimens are so eroded that the ribbed sculpturing is almost entirely lost.

MURICIDAE

Tritonalia crassilabrum Gray is a small shell and not at all common.

Trophon sp. is a beautiful white shell which closely resembles *T. laciniatus* but probably is not. Very few have been dredged by Dr. McMillin. These specimens came from 1320 feet off Coquimbo.

Concholepas concholepas Bruguière is a shell with which we have all become familiar. At auctions here they sell at up to $7.50, but there in Chile I bought 36 from the Los Vilos divers for 24¢. The only problem was that they were too heavy for me to bring home! The food resembles no other shellfish and is perfectly delicious. The operculum resembles the operculum of the Acanthinas and is therefore easily recognized as belonging to the Muricidae family. It, however, serves no useful purpose. The specimens from the far south of Chile are rather smooth on the exterior, in contrast to those from Los Vilos which are heavily sculptured.

Acanthina crassilabrum Lamarck is a very common Acanthina living on the rocks in shallow water. Again it is quite variable, varying in color from white to yellow to purple. Some have dull apertures with no teeth and some have shiny white apertures with teeth. They all have one long spiny tooth on the outer lip near the canal. The very young specimens are imbricated and two from southern Chile also.

Thais chocolata Duclos: Perrucho, the chief peasant, gave this to me as a very special parting gift. I know nothing of its history, but prize it.

Chorus giganteus Lesson was given to me by a man in Santiago.

Xanchochorus xanthostoma Broderip were dredged in 400 meters off Coquimbo.

OLIVIDAE

Oliva peruviana Lamarck, a very variable species.

VOLUTIDAE

Adelomelon ancilla Solander is considered a great nuisance by the southern Chilean fishermen. About 50 of them foul up their nets -- so they just stretch the nets on the beach and stamp on all the *ancilla*! The young specimens have a light brown reticulated pattern.

Odontocymbiola magellanica Gmelin is on those same fish nets, but much rarer.

Miomelon phillippiana Dall has caused considerable excitement at the Academy of Natural Sciences and the American Museum of Natural History, for it had not been seen before. Dr. Abbott, after some searching through the literature, was able to identify it from one specimen among several which still retained the original rather heavily ribbed structure. The other specimens are badly eroded though all were taken alive. They were dredged in 400 meters off Coquimbo.

TURRIDAE

Gemmula sp. An attractive shell, at this writing still unidentified.

SIPHONARIIDAE

Pachysiphonaria lessoni Reeve: I collected these myself, in great quantities. They are a deep chocolate brown.

Pachysiphonaria laeviuscula Sowerby from the south of Chile differ, having a white ring around the edge.

CLASS AMPHINEURA

Acanthopleura echinata Barnes is a very large species of chiton, up to 6 or 7 inches long when alive, and is an important food item for the natives. The girdle is filled with short spines which distinguish this species from another similar one in the Coquimbo area.

Chiton granosus Frembly is very common. It has lovely deep blue plates.

Chiton latus Sowerby has light blue plates and is much rarer. There were only two specimens collected.

Tonicella sp. was collected on a *Concholepas concholepas*.

CHILINIDAE

Chilina dombeyana Bruguière, a fresh-water species collected by Dr. McMillin in Lake Llanquilura in the north of Chile.

PELECYPODA

LIMOPSIDAE

Limopsis jousseamei Mabille and Rochebrune, dredged in 400 meters off Coquimbo.

GLYCYMERIDAE

Glycymeris intermedia Broderip, southern Chile.

MYTILIDAE

Mytilus chorus Molina is the large commercial mussel.

Mytilus patagonicus Orbigny, from southern Chile.

(Mytilidae continued:)

Perumytilis purpuratus Lamarck is a moderately small species (1 to 1½") common on the rocks at Los Vilos.

Semimytilus algosus Gould is a tiny species, the largest specimens only 3 to 4 mm. The black ones were on the rocks. The rather pale brown specimens were found in the mossy growth on the Concholepas concholepas when cleaning them at home.

PECTINIDAE

Plagioctenium purpuratum Lamarck is the large commercial pecten. I have only a small specimen.

Pecten patriae Jurado is a lovely, fairly familiar pecten.

OSTRAEIDAE

Ostraea sp., from southern Chile.

CHAMIDAE

Chama sp.

VENERIDAE

Eurhomalea rufa Lamarck, and

Protothaca antiqua King: These two are fairly large clams. They are served raw, together on the same plate, and taste exactly the same.

DONACIDAE

Mesodesma donacium Lamarck is a huge donax -- about 3" in length.

SOLENIDAE

Solen macha Molina is the Chilean razor clam.

PHOLADIDAE

Pholas chiloensis Molina is the Chilean counterpart of our "Angel Wing".

Petricola patagonicus Orbigny, from southern Chile.

BRACHIOPODA

One unknown species from southern Chile.

HEARD IN PASSING

First-time visitors to the scientific departments of our American Museum of Natural History often express amazement at the amount of material in our study collections, many times the number of specimens and artifacts that are seen by the public in the exhibition halls. One such visitor made a unique suggestion the other day to Bill Old in Living Invertebrates. "Why not have a continuous conveyor belt issuing from behind the scenes and carrying all the unexhibited material -- skins, skulls, pots, shells, etc. -- in an endless procession for the public to behold?" It's a lovely idea -- a huge natural history smorgasbord!

. . . From the March, 1964 GRAPEVINE of
The American Museum of Natural History

NEW YORK SHELL CLUB NOTES No. 103 June-July-August 1964

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR. Notify Corres. Sec'y of any change in address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, SEPTEMBER 13th, 1964, at 2:00 P. M.

PROGRAM: M. K. Jacobson will present Chapter 2 of his informative and interesting course on mollusks.
Reports of summer activities by members.

JOSEPHINE WICHERN

We sadly report that Josephine Wichern, widow of Bernard Wichern, died suddenly and quietly June 10th while with neighbors.

Mrs. Wichern joined the New York Shell Club in October of 1950. At that time our members numbered only 37. In November of 1954 she was elected to the office of Corresponding Secretary and she fulfilled the many duties of that office in the growing club, including the mailing of our "Notes", until February of 1959 when she was elected Vice President in charge of Public Relations.

She was our unofficial hostess, and many of our members remember how she made them welcome when they first came as visitors.

The Club is indebted to Jo Wichern for many years of service, contributing in no small way to the growth of the Club to its now more than 237 count of members. Her many friends and associates will miss her. She left no survivors.

A CORRECTION

Regarding the announcement on page 5 of NOTES No. 102, DEALER IN SHELLS, Capt. Jack Wooster of the "Lampshell", P. O. Box 502, Manila, Philippine Islands, should have been quoted as follows:

"On all shipments for small lots we pay postal charge and will gladly refund your money if you are not pleased with our offering . . "

Our apologies to Capt. Wooster and our readers for the error.

dr

NYSC FIELD TRIP JUNE 6th

The complete report on the field trip to Ward's Point, Staten Island, on June 6th has not yet come to our desk, but meanwhile we can give you a brief summary:

The day was cloudy, turning to rain, but the trip was successful in that the area was observed before the dredges and bulldozers arrive to change it completely. We found that pollution, probably mainly from commercial shipping, had decimated the fauna to such an extent that even the few species still living there in reduced numbers do not seem to have much chance of survival. Of many species only indifferent beach specimens reflected former populations, and of the beach specimens there were but very few Epitonium -- perhaps half a dozen were found.

Reminiscing at our June meeting, color slides were shown of the much more productive field trip of June 9th, 1956, with pictures of Epitonium rupicola which had been collected then in goodly numbers (including two live specimens) along with other interesting material.

We might note here that the New York State Conservation Department and the Tri-State Sanitation and Pollution Commission have worked desperately these past years against the dumping of oily bilge from ships and of waste materials from manufacturing plants in the area. Their studies extend far up the tributaries and, though working against great odds, they hope to eventually clear the local waters and see the return of healthy marine life.

dr

SHELLING TIDES

As no informal Club trips have been planned for this summer, we note here for your convenience a few weekends when you might plan to go shelling. If you do, look around -- another NYSC sheller might be chasing you!

Tide table predictions on Bridgeport, Conn., used for the north shore of Long Island from the Bayville area to Mt. Sinai Harbor:

July 4: 0.4 at 1:15 PM DST
July 5: 0.3 at 2:13 PM DST

August 1: 0.5 at 11:45 AM DST
August 2: 0.5 at 12:48 Noon DST

Labor Day weekend the tides will be best, but the time rather late in the afternoon:
September 5: -0.3 at 5:32 PM DST
September 6: -0.4 at 6:20 PM DST
September 7: -0.4 at 7:05 PM DST

Tide table predictions on Sandy Hook are used for the intermediate points on the south shore of Long Island from Sandy Hook to Jones Beach:

July 11: -0.3 at 4:16 PM DST
July 12: -0.1 at 5:06 PM DST

July 18: 0.5 at 10:02 AM DST
July 19: 0.5 at 10:49 AM DST

August 8: -0.4 at 3:09 PM DST
August 9: -0.3 at 3:59 PM DST

August 22: 0.4 at 2:12 PM DST
August 23: 0.2 at 2:55 PM DST

September 5: -0.3 at 2:02 PM DST
September 6: -0.4 at 2:52 PM DST
September 7: -0.3 at 3:39 PM DST

Tide Tables -- high and low water predictions -- for the East Coast of North and South America (from which publication the above figures were taken) may be purchased from the Coast and Geodetic Survey office at 90 Church Street, New York, N. Y. 10007. Price $1.00 plus tax.

ANNOUNCEMENTS:

SEASHELLS UNLIMITED, INC.

Veronica Parker Johns has realized a dream. She has purchased the well-known McArthur Shell Shop (Mr. McArthur has retired) to be known hereafter as SEASHELLS UNLIMITED, INC. The proud new owner is very busily refurbishing the store and arranging for new and varied stock which will include shell books. As you know, Miss Johns has had long experience with the shop and is an enthusiastic member of our New York Shell Club. She is eager to have her establishment set up to cater to all shell collectors whether advanced, beginner or aesthetic, with all items properly and conservatively evaluated. She will handle mail orders.

We congratulate Miss Johns on her achievements and wish her all success in her new venture. You will find her and her shells at SEASHELLS UNLIMITED, INC., 590 Third Ave. (near 39th St.), New York, N. Y. 10016. The phone: LE.2-8690.

NICK KATSARAS TO HOLD AUCTION SEPTEMBER 20th

How many times has our Nick Katsaras said "No more auctions!"? But it must be in his blood -- he can't resist collecting those pretty shells (and neither can we). We have a partial list of the shells he will offer next September -- they include an assortment from A to X (the "X" is pronounced like the "Z" in "Xenophora"), among them many "most wanted" such as a 2-3/8" _Conus aurisiacus_ and a deep red, 4" _Voluta aulica_.

Nick will hold his auction at the National Arts Club, 15 Gramercy Park (which is at 20th Street near Irving Place), New York City. Open for inspection at noon, the auction will start at 1:00 P. M. and run until no later than 6:00 P. M. Anthony D'Attilio will auctioneer. The date again: September 20th, the Sunday following our first Club meeting of next season.

PUBLICATIONS:

UNDERWATER NATURALIST
Bulletin of the American Littoral Society

For our field trip to Sandy Hook in June of 1962, Dr. Lionel Walford of the Sandy Hook Marine Laboratory had arranged for volunteer divers to help us in our molluscan survey. (Unfortunately, water conditions were not favorable for their work.) These volunteers were from the American Littoral Society, founded in April of 1961, with their headquarters at the Sandy Hook Marine Laboratory. The Society is "devoted to the conservation and underwater study of animals and plants in the littoral (shore) area of the sea". A communication reads "While we are primarily interested in fish, all the littoral living things come into our orbit....we are of course interested in the creatures that inhabit the shells." (We enclose the Society's brochure for your interest.)

Their quarterly bulletin, UNDERWATER NATURALIST, is a printed booklet of 6" x 9" and has averaged 36 pages. It is well illustrated with black and white photographs and a few line drawings. The latest issue, No. 1 of Vol. 2, contains among other items and articles: "Bioluminescence in Barnegat Bay", "Visit to a Coral Reef", "The Sea in Cross-section" (an aquarium), and an entrancing description of undersea life entitled "Forests of the Sea", by Wheeler North, from which we excerpt these few lines:

> "The holdfasts of the giant kelp are thought to form excellent nurseries for the juvenile forms of such commercially important

animals as the abalone. David Leighton, of the Scripps Institution of Oceanography, has dissected many large holdfasts and nearly always found many tiny abalones with shell lengths of one to several millimeters. One holdfast contained more than fifty juveniles."

The American Littoral Society has chapters in California, Maine, Massachusetts, New Jersey, New York, Pennsylvania and Washington. The New York Chapter meets at the Aquarium and may be contacted through its president, Mr. Stanley Shabman, 70 Park Terrace West, New York 34, N. Y. or Mr. Dian Ferg, 86-04 96th Street, Woodhaven 21, N. Y.

A MYSTERY OF HIDDEN SHELLS

Can any of our readers supply a clue as to the whereabouts of all or part of the shell collection of H. E. van Rÿgersma? The collection was of both land and marine shells from the Netherlands Antilles, chiefly from the island of St. Martin. When last heard of it was sold to a (medical?) Dr. B_______ of New York, about 1894 or later. Dr. B_______ was of German origin, the only clue to his name other than the initial "B". The van Rÿgersma collection was large, and was packed in big crates.

Dr. H. E. Coomans of our American Museum of Natural History contributes the above information and continues:

"Since there are only few lots from St. Martin in the large museums on the east coast (American Museum of Natural History, Academy of Natural Sciences of Philadelphia, United States National Museum, Museum of Comparative Zoology), the van Rÿgersma collection must be still in private hands.

Questions: (1) Has anyone of you ever seen the name of van Rÿgersma on a label?
(2) Does anyone of you know the name of a shell collector at the end of the 19th century, in New York, a doctor, with a German name starting with "B"?
(3) Does anyone know of a collection with relatively much material from St. Martin?"

If you have any clues, or if you find any clues, won't you send them to Dr. Coomans? He has a strong interest in the missing shells. As many of you know, he came to our Museum straight from three years of field work in the Netherlands Antilles, and the van Rÿgersma collection could supply much of scientific interest.

THE WISOFF COLLECTION

The large and scientifically accurate shell collection of the late Dr. Julius Wisoff is now a part of the permanent collection of the American Museum of Natural History, where it will form an important part of the study collection which is consulted by malacologists from the museums of the world.

The collection is particularly rich in Liguus, Dr. Wisoff having incorporated several other Liguus collections with his own. It is very fine in series of personally collected shells which Dr. and Mrs. Wisoff collected on trips through Georgia, Florida, the West Indies and Mexico. There are also many fine suites of well-localized material from several areas, including Peru, Spanish Morocco, Bavaria and the Philippines. In addition,

there are numerous minute species not often found in collections, whether institutional or private. The thousands of shells are now in the process of being accessioned.

The Wisoffs have made an extremely valuable contribution to the Museum collection. We of the New York Shell Club share in the gratitude that this collection, the careful work of years, is in no danger of being lost to science.

WEO/DR

COLLECTING SHELLS IN THE COOK ISLANDS IN 1962

On May 10th Richard W. Foster of the Museum of Comparative Zoology, Cambridge, Massachusetts, visited the New York Shell Club and told us of his work and experiences in the Cook Islands while on a shell collecting expedition for the Museum of Comparative Zoology and the Academy of Natural Sciences of Philadelphia. One object of this expedition was to observe if Hawaiian species lived this far south, and which of the Polynesian species lived this far north.

The members of the expedition (Mr. Foster, Mrs. Ruth Ostheimer representing the ANSP, and the late Miss Mary Miller of New York) spent three months working in the islands -- chiefly Raratonga. The winter months of January, February and March were selected, though the rainy season, because the 80° water temperature of that period made working conditions comfortable. These islands below the equator have their cold months in July and August, when water temperatures fall to the 60°'s.

The Cook Islands are a territory of New Zealand, and are located about 1500 miles northeast of Auckland. They are not open to tourists or other casual visitors. When a cruise ship does stop by, the passengers are not permitted ashore but the Cook Islanders may visit the cruise ships with souvenir items and perhaps a hula. This governmental policy may appear too strict, but New Zealand has seen in other islands the unfortunate effects of uncontrolled influx, and even here cannot erase some of the detrimental changes made before setting up controls.

Mr. Foster's talk was illustrated by a comprehensive series of color slides taken by Mrs. Ostheimer, with views of the island and a breathtaking air view of the waters to give us a background for the subjects photographed at closer range.

Raratonga is a volcanic island, its beautiful foliage-covered peak rising to 2,000 feet. There is but one road, a 20-mile circle clinging to the shoreline, which they traveled in a 1941 Austin with a tendency to flat tires. Beyond the shoreline the lagoons (quite shallow), beyond the lagoons a fringing reef around the entire island -- sandy areas, algae-covered areas, rocky areas. (The trio figured they turned somewhere between a quarter and a half ton of rocks per day!) Expedition headquarters were in a modern house only 150 yards from a beach and shallow lagoon where Conus ebraeus and Conus pulicarius were abundant.

The Cook Islanders shelled at night. Then a hundred or more of them would be out on the reef gathering fish and snails to eat and shells to sell. A dozen species of mollusks, including Star and Turban shells, were included in the native diet. Also, Nerita polita, unseen in the daytime, were found by the hundreds on the rocks at night. (Mary Miller brought us a menu from Fiji listing Nerite soup! -- Ed.)

Mrs. Ostheimer photographed juvenile Tridacna maxima in situ, in crevices of a flat coral platform, their mantles brilliant streaks of color. A

live Dendropoma maxima (the longhorn shell related to the worm shell) was most interesting: This creature puts out mucus threads of a foot or more in length, making a web to catch its food. Among the other species pictured were Latirus undatus, Cymatium nicobaricus with its ball of pale yellow eggs, the spotted, rare Cypraea cumingi, Coralliophila on coral, a 1 cm. Cypraea goodalli, and an exceptionally perfect and large Conus striatus. This unusual specimen was about 5" in height and was found living in sand -- which situation was credited with the shell being completely free of any foreign growth. Regarding its size and that of the Cypraea goodalli, Mr. Foster remarked that at the limits of their range mollusks most often have the aspect of either juvenile or of gigantism.

Mr. Foster concluded with an account of problems encountered in leaving these islands where there is no regular transportation service. Finally a small Fiji Airways plane happened along and managed to take the group aboard with their hastily reduced baggage which, however, still contained their 750 lbs. of specimens.

AN ARTICLE ON SEASHELLS is scheduled to appear in LIFE MAGAZINE about July 10th. The author: R. Tucker Abbott. Watch for the issue on the stands . . .

THOSE GOOD OLD LATIN NAMES!

Some shell collectors only use the proper Latin name.
Others, newer at the game, hardly ever do the same.
The novice claims that common names make for much more ease --
If speakers would but use them, all would be a breeze.
But neophytes will find that common names are fickle,
And really are not worth an old and plugged nickle!

A note received the other day inquired of shell exchange --
The species requested I really detested,
For the names were a wee bit strange:
"A Cat's-eye Moon, a Half-scratched Tusk, a Dipper Shell,
A Carrot Cone, a Turnip Whelk, a Writhing Shell!
Rat Tails, Hatchets, the Little Screw,
Saw-tooth, Shark-eye, Lamp Shells, too!"
I squirmed as I read of the "pretty Wood Louse"
Before going on to the "little Gray Mouse" --

These names, I fear, drive me to beer!
Oh, give me the Latin "nom de queer"!
From Bronx to Bali, from Broome to Bern, from Crete to old Cape Town --
In any land the Latin name will never let you down.
But common names? There is such spate
That one man's "Hat" is another's "Plate"!

So learn the Latin names, even though you hate 'em --
(You'll soon be rattling off "Prunum labiatum"!)
Then when you look upon a shell that some collector hands you,
He'll call the name, you'll do the same --
There'll be no doubt the world throughout that he will understand you.

By STANLEY LEVINE, with D. Raeihle.

OLD CHINESE PROVERB: "All experts start as beginners."

SHELL SYMBOLISM IN ANCIENT MESOAMERICAN ART

by Edward F. Cowles

The great pre-Columbian civilizations of what is now Mexico and western Central America were theocracies. The priest-rulers had at their disposal not only the collective labor of the mass of the people, but also the skill of the artisans, and used it to religious ends. Sculptors decorated temples and carved religious statues and monuments. The best pottery was made for the ruling class, for use in the temples, and (most of that which has survived intact to the present day) especially for burial with the dead.

Shells appear frequently in the sculpture, ceramics, and codices (picture-manuscripts) of these civilizations, and it would be easier to enumerate the instances in which they are not used as symbols. In Mixtec codices and in the Mayan mural painting in the Temple of the Warriors at Chichen Itza, shells and other marine creatures (though highly conventionalized themselves) are used in naturalistic fashion in depictions of seaside villages. Zapotec and Mayan sculptures show costumes bordered with fringes of Conus and Oliva that likely have no non-decorative significance. The same can be said of some, though not all, of the baked-clay stamps used by the Aztecs to apply shell designs to cloth, pottery, or their own skin. Ceramic vases and trumpets in the shape of shells were fairly common in western Mexico, especially Colima, but this region was not the home of a highly organized civilization, and religious symbolism is notably absent from its arts. In all other cases, it is safe to assume that a shell represents some idea or deity.

In the Olmec art of 20 - 25 centuries ago, the only use of a shell that I know of is in a 3-ft. statue of a monkey holding a gastropod. What this figure from La Venta denotes is unknown, but it is surely more than just a garden ornament.

In Mayan art, shells occur in connection with two types of deities. Of the "bacabs", mythical characters who stood at the four cardinal points and supported the sky, one wore on his back a spider web, one a turtle carapace, and the other two each a snail shell. These can be seen on some of the carved square columns at the Temple of the Warriors. A common motif in Mayan codices and on painted pottery is a male figure wearing a snail shell or actually encased in it. This represents a god of the earth; the shell being a symbol of increase, hence fertility. One especially beautiful expression of this idea shows the head of the old earth god in the aperture of the shell: he is sending forth a maize plant, and in place of one of the ears of corn there sprouts the head of the young maize god.

At Teotihuacán, in central Mexico, dating from almost two thousand years ago, are temples and palaces with mural paintings dedicated to the rain god. In a formal, symmetrical, but rich and flowery style are depicted the riches of the harvest, interspersed with numerous sea shells. Also, there is the small but superb pyramid upon which stood a temple to Quetzalcóatl, the feathered-serpent god. On the vertical wall of each step of the pyramid, between the projecting serpent heads and rain-god masks, above and below the writhing serpent's body, are carved sea shells. There appear to be three genera: Nerita, Spondylus or Pecten, and Fasciolaria (Pleuroploca gigantea). Why marine shells rather than terrestrial should have come to be associated with the god of rain and fertility is a mystery; however, the idea of the feathered serpent is believed to have originated in the region of the northern Gulf coast of Mexico.

From there also apparently came the god whose principal emblem was the spiral cross-section of a shell such as Strombus gigas, having cusps around the outer whorl -- Ehécatl, god of the winds. This deity, otherwise recognizable by his large-lipped mask, was part of the Quetzalcóatl concept. More often than not, Quetzalcóatl in human form was depicted wearing the mask, and always with the spiral pectoral ornament. The latter often occurs by itself as a central decoration on pottery; in repetition and stylized sometimes to the point of being hard to recognize, it was used as a frieze. The motif is found from Maya territory to Sinaloa in western Mexico, and even on an engraved stone plaque from Moundville, Alabama.

EXHIBIT OF NEW YORK SHELLS FINANCED

At our June meeting, NYSC Treasurer Mathilde Weingartner was pleased to present to the Department of Living Invertebrates our check for $500.00 to finance an exhibit of New York shells in our American Museum of Natural History. Mr. William E. Old of the Department accepted the check in the absence of Chairman William K. Emerson. In expressing thanks, he remarked on the generosity displayed by the members in their donations to our recent auction to raise funds for this long-awaited exhibit.

The space (on the first floor of the museum) has already been allocated. By coincidence, it is near the meeting room where the Club met in earlier years. It is expected that "our" exhibit of the shells of New York will be ready for admiration next spring.

NEW YORK SHELL CLUB LIBRARY

We are pleased to announce that the Department of Living Invertebrates has allocated a shelf in one of their fifth floor offices to be used for the centralization of the New York Shell Club Library. Members will appreciate the opportunity to consult the assorted literature that is the property of the club but has never been conveniently located. We now have the incentive to build a proper reference library by purchase and subscription in addition to hoped-for donations.

We will give you details as they develop -- just now the future librarian is away and will be gone for several weeks.

BUDDING T-V STAR?

Bill Old was a guest on the Morty Gundy Show (WOR-TV) of Monday afternoon, June 8th -- a show primarily for children. In the five minutes he was on camera Bill gave basic information on shells and answered such questions as the one about hearing the ocean when putting a shell to the ear. Bill's props were a Golden Cowrie, a Charonia tritonis, a large Argonauta and the excellent reproduction of Conus gloriamaris carved by Ethelyn H. Woodlock. Bill did well in his busy five minutes and the producers were pleased.

* * *

(Bill corrects us: He says he tried to give basic information on shells. We're glad to see such modesty in a TV personality. -- Ed.)

XANCUS OR TURBINELLA ?

by Morris K. Jacobson

For years the sacred Chank shell of India and related forms elsewhere was called Turbinella Lamarck, 1799. In 1926 the International Commission on Zoological Nomenclature (ICZN) in its opinion 96 ruled that the Röding names of 1798 were valid. Hence, since Xancus Röding had one year priority over Turbinella Lamarck, the latter had to give way to the former. This decision was accepted with a good deal of grumbling by malacologists, but little by little Xancus began to gain wider and wider acceptance.

In 1956, however, Joshua Baily of San Diego petitioned the ICZN to exercise its plenary powers to waive the rule of priority in this case and to reestablish Turbinella in place of Xancus. The ICZN in opinion 489 of 1957 agreed with him and the chank shells were again officially to be called Turbinella. At this about-face the fury of malacologists generally knew no bounds. Myra Keen, Harald Rehder, and Tucker Abbott among others vigorously protested against this second change. Their point of view is summarized by Emily H. Vokes of Tulane University in "Tulane Studies in Geology" Vol. 2, pp. 39ff (1964). In general the argument hinges on two facts: (1) that the name Xancus was beginning to be widely used by malacologists in place of Turbinella (eleven citations to one); (2) that the supporters of Baily's petition were not experts in the field, since they included one fresh-water shell expert (Baily himself), a fish-man, a bird-man, a botanist, and only one marine conchologist. Mrs. Vokes also denounced the "non-zoological" support given to the Baily petition by anthropologists and others.

Upon referring back to Baily's original petition, I feel that he made out a good case which was not completely stated by Mrs. Vokes. In his point 5, for example, Baily refers to the "legal and commercial documents in which the name Turbinella habitually appears but in which the name Xancus is never found." There is also, he goes on to state, "a great mass of archeological and ethnological literature relating to the religious and other uses of the Chank shell." In short (point 6) Baily deplored the "disappearance of some well-known zoological names (such as Turbinella) that leads to "serious confusion in fields far removed from actual zoology."

This important point is only fleetingly mentioned in Mrs. Vokes' discussion. There are not very many shell names that figure prominently in extra-malacological circles. And if some do, as in the case of Turbinella, shell specialists should be very reluctant to tamper with them. After all, the anthropologists etc. have their own mass of literature to cope with; they cannot be expected to keep up with the flood of malacological nomenclatural work. All they are interested in is getting a fixed name which all specialists in their own fields will immediately recognize. They have been using Turbinella in all their literature for decades; a change to Xancus is of serious concern to them. Let the shell specialists change names as often as they feel they need to, provided the species they refer to are of interest to malacologists only and no one else. Names that have gained wide acceptance, especially in extra-malacological fields, should be preserved as far as the rules of nomenclature permit. This is all that Dr. Baily wanted.

COMING NEXT FALL IN OUR NOTES: Dr. Dodd writes of an experience in Madagascar, Ethelyn Woodlock of St. John, a third "Mollusks in Medicine", etc.

HAVE A WONDERFUL SUMMER - - - - - - - - - - - - - SEE YOU SEPTEMBER 13th !

JUNE, 1964, SUPPLEMENT TO ROSTER OF NEW YORK SHELL CLUB

We welcome these new members who have joined us this past season and bring you to date on address changes since our supplement of September, 1963:

ALTA, Mrs. Jewett	680 Tiffany St., Bronx, N. Y. 10459
AVELLANET, Mrs. Alphonse	341 Griggs Ave., Teaneck, New Jersey
BAXTER, Mr. David	c/o Mrs. Fleming, 349 W. 85th St., N. Y. 10024
BENNETT, Jo and Rusty	c/o Mooring Trailer Park, Marathon, Florida
GLOVER, Mr. Phillip W.	Navy 535, Box 10, F.P.O. San Francisco, Cal.96623
COLANTONIO, Mr. George, Jr.	214 Warren St., Jersey City 2, New Jersey
COLLINS, Mrs. Elizabeth	65 W. 95th St., New York, N. Y. 10025
COMPITELLO, Mrs. Julietta	399 St. John's Place, Brooklyn, N. Y. 11238
DENNY, Mrs. Helen	Box 52B - Route 1, Jewel Box Drive, Sanibel Island, Florida
GRANT, Mrs. Havens	Ituri Towers, Greenwich, Connecticut 06830
HANO, Mrs. Philip	515 East 89th St., New York, N. Y. 10028
HEEBNER, Mr. & Mrs. Albert	58 Forest Hill Road, West Orange, New Jersey
KLINE, Mr. & Mrs. George F.	P. O. Box 271, Madison, New Jersey 07940
LOCKE, Misses Honey & June	218-25 68th St., Bayside, Queens 64, N. Y.
MANDEL, Mr. Louis P.	111-19 66th Ave., Forest Hills, N. Y. 11375
MANZO, Mr. William	619 38th Street, Union City, New Jersey
MAULL, Miss Diana	31 East 72nd Street, New York, N. Y. 10021
OGUSH, Mr. Eugene	142-10 Hoover Avenue, Jamaica, New York 11435
REILEY, Mrs. Austin D.	230 E. 50th St., Apt. 10A, New York, N. Y. 10022
REHMAN, Mrs. Edward S.	1528 E. 53rd St., Brooklyn, New York 11234
RITTER, Mr. & Mrs. Fred	225 Adams Street, Brooklyn, New York 11201
SANDBERG, Mr. Norman	349 West 85th St., New York, N. Y. 10024
SAVINO, Miss Angela	48 Dallas Avenue, New Hyde Park, New York
SCHMULOWITZ, Mrs. E.	31 Crestfield Place, Northport, New York 11678
SEID, Mrs. Shirley	1075 Park Avenue, New York, New York 10028
SKYTKOWSKI, Mr. Stanley	156 Highland Avenue, Yonkers, New York
SMITH, Mr. & Mrs. Dan	9 Forsgate Lane, Bordentown, New Jersey
STEPHENS, Mr. & Mrs. George	Lot 51, Harvelle's Mobile Haven, Key West, Fla.
STIX, Mr. & Mrs. Hugh	13 Vandam Street, New York, New York 10013
STOUT, Mr. & Mrs. Joseph	354 West Neck Road, Huntington, New York
TRICOMI, Mr. Edward, Sr.	54-02 39th Avenue, Woodside, New York 11377
WARSHAW, Mrs. Sylvia	3560 Rochambeau Ave., Bronx, New York 10467
YUCAIPA SHELL CLUB	c/o Mrs. Howard L. Fletcher, 1008 La Hermosa Drive, Redlands, California

ADDRESS CHANGES:

BURGER, Mrs. Marion	1445 Shore Parkway, Apt. 4K, Brooklyn, N.Y. 11214
COLEY, Mrs. Dorma P.	2221 Bay View Road, Punta Gorda, Florida 33950
GOLDEN, Dr. Joseph	Atlanta University, Atlanta, Georgia 30314
HAMILTON, Mrs. Dennis	78 Riverside Drive, New York, New York 10024
JOYNER, Miss Katherine	21 Gramercy Park, New York, New York 10003
KLEPPER, Mrs. Richard	215 West Shore Drive, Oakdale, L. I., New York
NORDSTROM, Mr. L. G.	96 Seventh Avenue, New York, New York 10011
ROHMANN, Miss Johanna W.	Swarthmore Apt. Hotel, #706, 22nd & Walnut Sts., Philadelphia 3, Pa.
SCHMITT, Mrs. Charles B.	511 W. 112th St., Apt.9, New York, N. Y. 10025

A CHANGE OF NAME AND ADDRESS:

From THOMPSON, Mrs. Louise, to:

MURRAY, Mrs. Francis A. 11 Old Orchard Road, New Rochelle, New York

Received N.Y. City, Oct. 5, 1964
WKE

NEW YORK SHELL CLUB NOTES No.104 Sept.1964

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. Notify Corres. Sec'y of any change in address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, OCTOBER 11th, 1964, at 2:00 P. M.

PROGRAM: BIOLOGICAL USE OF ORGANISMS COLLECTED FROM NAVIGATION BUOYS. By Arthur S. Merrill

SAN DIEGO OR BUST! By Dorothy & John Germer

SHELL-OF-THE-MONTH: CYPRAEA SURINAMENSIS
By Harry G. Lee

PROGRAM NOTE: We are very pleased to announce Arthur Merrill as our guest speaker at the October meeting. Mr. Merrill is with the United States Fish and Wildlife Service, Bureau of Commercial Fisheries, and for several years was connected with the laboratory at Woods Hole. He has recently transferred to the laboratory the Service maintains at Oxford, Maryland. We know that his talk will open up for our members still another phase of shell collecting.

NYSC FIELD TRIP TO WARD'S POINT JUNE 6th, 1964

Of the 26 species represented in our collecting bags at the close of the field trip, only six species had been found alive. These were:

Gastropods: Nassarius obsoletus (That sturdy snail!)
Crepidula fornicata

(A large percentage of the Crepidula fornicata were either fresh dead or barely alive, being found generally on stranded horseshoe crabs. Some of these Crepidula specimens were among the largest we have ever seen, and many of them were incubating eggs.)

Bivalves: Brachidontes demissus
Mercenaria mercenaria
Mytilus edulis
Mya arenaria

(Water conditions prohibited any collecting of these for our lunch.)

Species represented by beach specimens only:

Gastropods:	Epitonium rupicola	Busycon carica
	Crepidula plana	(also B. carica egg case)
	Crepidula convexa	Nassarius trivittatus
	Polinices duplicata	Melampus bidentatus
	Eupleura caudata	Physa sp.
	Urosalpinx cinerea	Goniobasis virginica
Bivalves:	Arca pexata	
	Aequipecten irradians	Ensis directus
	Crassostrea virginica	Mercenaria mercenaria notata
	Mulinia lateralis	Petricola pholadiformis
	Macoma balthica	Spisula solidissima

(See NOTES # 103 for a general summary of the outing. - Ed.)

AMERICAN MALACOLOGICAL UNION, NEW ORLEANS MEETING, JULY 1964

Last July 21-24 found approximately one hundred AMU delegates assembled at the Sheraton-Charles Hotel in New Orleans for a stimulating and enjoyable meeting sponsored by Louisiana State University in New Orleans and presided over by AMU president John Q. Burch.

To give a report of all the scientific papers is beyond the scope of these NOTES, as there were studies of molluscan anatomy, behavior, cytotaxonomy, deformity, distribution, evolution; of freshwater, fossil and marine species that ranged from the Indo-Pacific to Hudson Bay to Puerto Rico and points in between. However, among the many highlights for this delegate were Dr. Ruth Turner's "Anatomical Relationships in the Teridinidae", a report on her work with the borers that was as thrilling as any mystery story; Donald Moore's animated presentation "The Evolution of Mesogastropoda" proved a lively subject; Dr. Katherine Palmer's dissertation "Who Were the Sowerbys?" shed light on this name that authors so many shells. (Did you realize that there were, over four generations, five individual Sowerbys, each of whom did extensive bibliography and illustrations from 1812 to 1897? (!!))

Announced at the business meeting, we were pleased that the American Malacological Union accepted the invitation of the New York Shell Club to meet in New York in 1965. The meeting will be held July 20-23 at Wagner College Campus, Staten Island, and will be presided over by AMU's newly elected president, Dr. Juan J. Parodiz of Carnegie Museum, Pittsburgh, Pennsylvania.

The days of scientific sessions were interspersed with "Shell Club Night", a bus tour of New Orleans, informal after-hours' walks through the nearby French Quarter, two field trips (a choice of dredging in Lake Pontchartrain or a trip to the beaches), the banquet at the famous Arnaud's Restaurant and, on the last evening of our stay, a delightfully relaxing social evening aboard a chartered Mississippi River boat as it sailed the broad loops of that famous river.

The delegates were very appreciative of their hosts' careful work to make this meeting remembered for its hospitality as well as its science: Dr. Dolores S. Dundee and Dr. Harold A. Dundee with their aides managed the many detailed arrangements with a quiet efficiency that we of the New York Shell Club hope to emulate next year.

D. Raeihle

PUBLICATIONS

REVIEW

LEAFLETS IN MALACOLOGY is a series of small, well printed pamphlets published at irregular intervals by S. Stillman Berry in Redlands, California. The first number was published in 1946 and the latest, volume 1, number 24, is dated July 29, 1964.

The leaflets, which are the work of several authors, discuss various topics of interest such as: octopus bites in human beings; the "generitype" of Nenia; the life of Ralph Arnold, 80 years of which were devoted to conchology; a case of a "hitchhiking" Murex found fixed to the side of a fish. However, most of them are devoted to Dr. Berry's descriptions of new species and genera, mainly from the West Coast of the continent. The large number of such reports serve to remind us of the perhaps still undiscovered richness of this molluscan province.

Unfortunately the descriptions are generally unaccompanied by figures and, clear as Dr. Berry's language is, the lack of illustrations is felt keenly by the reader, especially the interested amateur. These accounts are announced as being "merely preliminary", and "more detailed descriptions with appropriate illustrations" are promised for subsequent publication elsewhere. Some of these illustrations did indeed appear later in Myra Keen's SEA SHELLS OF TROPICAL WEST AMERICA (Stanford University, 1958). Others may also have been published elsewhere but they have not come to the reviewer's attention. It is regrettable that in this day of inexpensive but adequate photo reproducing processes the publisher can not see his way clear to provide figures. The question also arises regarding the advisability of printing such preliminary reports, especially if they cannot appear in completed form, figure and all.

In the latest issue, for example, a new genus of Naticidae (Lunaia) and a new species and subspecies of Melampus are described (M. mousleyi, M. olivaceus californianus). How badly illustrations of these new forms are missed can only be felt by those especially interested in such well-known and widely collected groups.

Yet it must be admitted that these leaflets are important contributions and should form part of the library of anyone whose interests include the rich fauna of the West Coast. The pamphlets can be procured from the publisher, S. Stillman Berry, at 1145 West Highland Ave., Redlands, California. The price is 25¢ each, or $2.00 for ten consecutive numbers -- a small enough price to pay in these days of soaring printing costs. Indeed, one could be certain that most if not all subscribers would be happy to pay a higher price if that is what is needed to provide illustrations of all new species.

... M. K. Jacobson ...

REVIEW

THE RECENT MOLLUSCA OF AUGUSTUS ADDISON GOULD, by Richard I. Johnson. U. S. National Museum Bulletin #239, 1964. Price: $1.50, for sale by Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

For the most part this is a classification, with illustrations, of the types of most of the species that this great American malacologist described as new. However, the first part includes an interesting and

most readable account not only of the life of Gould, but also of some other men in the field -- such as Joseph Pitty Couthouy and especially William Stimpson, part of whose fascinating travel journal is reprinted. There is also an account of the two U. S. exploring expeditions which provided many of the shells Gould described.

The first expedition, under Comm. John Wilkes, is a comedy of errors. Among other things, the expedition was plagued by petty jealousies and strong dislikes on the part of several members of the crew, for which Wilkes must share much of the blame. The expedition lost three of its original five vessels, two of which were wrecked. Poor Couthouy, who went along as the conchologist, complained that because of the "tyranny and fraud" he found on board "That which I had anticipated as a sort of pleasure must be performed as a task of duty." He suffered all sorts of small affronts to his personal dignity as well as a complete lack of cooperation. One of his chief complaints, which might explain the use of so strong a word as "fraud", was the fact that many officers took advantage of this government financed trip to make private collections.

The material that finally arrived home in Washington was likewise mistreated. "The National Institution had hired a clergyman who knew nothing of natural science to unpack the specimens. The worthy gentleman, noting that some of the numbered metal tags in the jars were discoloring the alcohol, carefully removed the tags, and placed them together in a separate jar, without replacing them with any other means of identification! With one act he thus rendered it impossible for Couthouy to identify the specimens and match them with his notes." Nor was this all. Some specimens had been sent temporarily to Peale's Museum in Philadelphia because of the lack of proper space in the nation's capital. Peale reports: "I am ashamed to record the fact, that when the boxes and packages were placed in charge of the National Institution, the seals were broken and a general scramble for curiosities took place by irresponsible members of the Society, in which some 'Honorable' men thoughtlessly took part. Many valuable specimens were lost, particularly shells and skins of birds."

The collections made by Stimpson on the second expedition fared somewhat better, but suffered grievously when the only MS which Dr. Gould had prepared on the collection went up in smoke on the occasion of the Chicago fire in October, 1871. Poor Stimpson took the blow badly. He languished for a year and died at the young age of 40 years. No journal of this expedition was ever published.

Though this work in general can be said to be designed for the use of experts and students, the amateur can gain much from it because of the 45 plates of fine pictures and especially the introductory remarks which cover 33 of the 172 pages. Naturally, its most reasonable price will also recommend it highly to everyone at all interested in shells.

... M. K. Jacobson ...

REVIEW

GEMS OF WORLD OCEANS by A. Gordon Melvin. Naturegraph Publishing Co., Healdsburg, California. Paperbound; 96 pages; 16 plates, mostly in color. Price $2.95.

The purchaser of this booklet will find himself with a neat little publication. It is ostensibly an introduction into the hobby of shell collect-

ing. There are only 56 shells discussed and illustrated in color. The nomenclature is frequently outdated and at least one picture is printed reversed (4-C). A market price is given for each species discussed.

The work contains much miscellaneous information about shells, not always correct and sometimes outrageously wrong.

With such well printed, authoritative and most reasonable publications on the market as Dr. R. Tucker Abbott's paperback publications, there seems little reason for any one to "shell" out so much money for this largely useless publication.

... M. K. Jacobson ...

REVIEW

Volume II of SELECTED SHELLS OF THE WORLD IN COLOR by Tokio Shikama.

For collectors, amateurs, and simply admirers of beautiful shells, there is the recently published second volume of SELECTED SHELLS OF THE WORLD IN COLOR. The author, Tokio Shikama, is Professor in the Department of Geology at Yokohama University. The book is in quarto size with 70 plates in color. There are also 245 black and white illustrations interspersed in the text, which is in Japanese. However, all captions and titles are in English. The colored plates are distributed in this manner: land shells, 1-18; bivalves 19-56 and 70; gastropods 57-69.

A color frontispiece illustrates a specimen of Conus gloriamaris dredged in the Bay of Bengal in 50 meters by a Japanese research vessel in 1958. Modern knowledge concerning the geographic range of this most romanticized shell is that it extends from the central Philippines to Papua and to south India. In addition it is now known that the species occurs intertidally and in depths to at least 50 meters (25 fathoms). This knowledge of its wide geographic dispersal apparently confirms what had been inferred from study of nineteenth century records.

There is one new species of Murex described on plate 65, fig. 4, and in fig. 196 in the text. This is Murex (Chicoreus) kawamurai from southwest Taiwan. Chicoreus kawamurai appears very close to Murex axicornis Lamarck 1822. It is very reminiscent of what I suspect is the true Murex axicornis.

Pictured on plate 66, fig. 6 and fig. 203 is a recently described Volute, Lyria (Harpella) kurodai (Kawamura). This is a striking member of the exquisite Lyrias and makes two new species described in this genus very recently. The other is Lyria cloveriana Weaver from Ceylon, for which see "Journal of the Malacological Society of Australia, No. 7".

On the debit side for this new book it may be well to point out that, probably due to the author's unfamiliarity with English, a considerable number of mispellings of the names of shells are to be found. From the viewpoint of the English speaking peoples, who perhaps form the largest non-Japanese market for these desirable books, it is most unfortunate that the volumes are not published bilingually. Their sale in the United States would, I am sure, increase very widely if at least English summaries were given.

The price per volume is $25.00, postpaid, directly from the publisher:

Hokuryukan Publishing Co., Ltd.
No. 55, 1 Chome, Jimbo-cho, Kanda
Chiyoda-ku, Tokyo, Japan

... A. D'Attilio ...

SUMMARY OF LECTURE ON PROSOBRANCHS

(New York Shell Club, June 1964)

By Morris K. Jacobson

What are "prosobranchs"? Practically all "normal" sea shells (except bubble shells and related forms), plus operculate fresh water shells and operculate land shells (Helicina, Pomatiasis, Cyclophorus). They are characterized internally by having the gills placed in front of the heart: "proso"=front, "branch"=gills.

What are "prosobranchiate archaeogastropods"? Generally more primitive. Internally with signs of primitive bilateral symmetry in the form of paired organs; nerve ganglia not concentrated. Shells frequently nacreous. Operculum calcareous or chitinous, concentric, nucleus central. Herbivorous, living on hard substratum. In the more primitive groups (Haliotis) fertilization is external.

KEY TO ARCHEOGASTROPODS

I SLIT SHELLS (Zeugobranchia): Pleurotomaria, Fissurella, Haliotis, Scissurella (all shells with slit or hole).

II TURBAN or TOP SHELLS (Trochacea): Mouth entire (no notch or canal); frequently nacreous. Trochus, Turbo and related forms.

III LIMPETS (Patellacea): Patella, Acmaea and relatives.

IV NERITES (Neritacea) (bleeding tooth shells): Neritina, Nerita and relatives (Helicina on land).

What are "Mesogastropods"? Internally more advanced: no bilateral symmetry, fertilization generally internal. Though the earlier groups are herbivorous, predaceous forms do appear (cowries, moon snails). Best defined by eliminating archaeogastropods (slit shells, top shells, limpets and bleeding tooth) and neogastropods (whelks, murex, volutes, cones). See below:

KEY TO MESOGASTROPODS

I HOLOSTOMATOUS (round mouth):
- 1 Limpet-like .... slipper shells etc. (Calyptracea)
- 2 Whorled or snail-like:
  - (a) lenticular (very flat, like a lens) ... sun dial (Architectonica)
  - (b) with spire
    - (1) depressed, low ... periwinkles (Littorina)
purple snails (Ianthina)
moon snails (Natica)
    - (2) elongate .... turret shells (Turritella)
wentle traps (Epitonium)
- 3 Humped .... cowries (Cypraea)

II SIPHONOSTOMATOUS (mouth with notch or canal):
- 1 Short siphonal canal or notch ... helmet shells (Cassis
strombs (Strombus)
horn shells (Cerithium)
tun shells (Tonna)

(continued next page)

(Mesogastropods, II Siphonostomatous continued:)

2 With long siphonal canal .... pear shells (Pyrula)
frog shells (Cymatium)

What are "neogastropods"? Internally characterized by extreme concentration of ganglia around the gullet. Generally predaceous and/or carnivorous; operculum horny, not concentric (nucleus not in center but at edge).

KEY TO NEOGASTROPODS

I WITH SIPHONAL CANAL

1 generally smooth, not armed with spines .. whelks (Buccinum)
2 generally spiny or rough .... rock shells (Murex)

II WITHOUT CLEARLY DEFINED SIPHONAL CANAL .... volutes (Voluta)
cones (Conus)

(NOTE: Unfortunately the Turrids with a siphonal canal are included with the cones because of radula.)

NOTES:

1 Included with the mesogastropods is the aberrant superfamily Valvatacea with only one family. These fresh water shells are characterized by having an external, retractible gill and by being hermaphroditic in a sub-class that is generally unisexual.

2 The outline given above is much simplified. For more details see Thiele, Morton, Wenz, Treatise on Paleontology.

3 The divisions of the prosobranchs also have distinctive radular characteristics. This will be the subject of another lecture.

SUMMARY:
Archeogastropods: slit shells, limpets, top shells, nerites.
Neogastropods: whelks, murex, volutes, cones.
Mesogastropods: all others.

MOLLUSKS IN MEDICAL RESEARCH

(From the Journal of the American Medical Association, Vol. 188, No. 5, May 14, 1964:)

"A nontoxic antiviral substance has been extracted from the abalone, the oyster, the clam, the sea snail, the queen conch, and the squid by investigators at the National Institutes of Health in Bethesda, Md...,(It was) reported...that 'these substances seem to be normal constituents of water or acetic acid extracts of all the mollusk species thus far studied.'

..The present investigation was triggered by an observation made in 1960 by Chen Pien Li, MD. that mice fed with the canned juice of the abalone showed a 'remarkable' resistance to experimental poliomyelitis. The mortality rate of the treated mice was 20 to 50% lower than that observed in the controls. 'Especially remarkable was the fact that the observed antimicrobial activity was manifested not only on virus but on bacteria as well.' .... Comparable results were also obtained in similar experiments in mice infected with influenza B virus intranasally even when treatment was started several hours after infection.

The NIH investigators have termed this antiviral and antibactereal substance Paolin 'which simply means abalone extract in Chinese'."

SEA URCHIN'S HEART LOCATED

SCIENCE SERVICE reports from Los Angeles that a University of California zoologist, Dr. Richard Boolootian, has located the heart of the purple sea urchin. The article reads: "The two-chambered organ has rhythms that can be recorded by an electrocardiograph. Although the heart is only a fraction of an inch in size, it pumps a surprising volume of fluid ...."

(MOLLUSKS IN MEDICAL RESEARCH, also appearing in NOTES #79 and #87, are a contribution of our member Dr. Joseph L. Abramson.)

PHYSIOLOGY OF A CLAM: A news item in a local paper (we can't find the clipping) was to the effect that zoologists have succeeded in taking the blood pressure of a clam. Wish they had said how it was done -- it would eliminate that silly vision we have of an inflatable bandage around the clam's slippery foot.

REGARDING THE KITE AND THE APPLE SNAIL

In an article in the New York Times, June 24, 1964, the Everglade Kite is mentioned as being in danger of extinction. The Department of the Interior's Bureau of Sports Fisheries and Wildlife has closed a part of Loxahatchee National Wildlife Refuge in Florida to protect the nesting of this rare bird.

"....the number of Everglade Kites had been reduced because the water habitat for their source of food had been diminished."

"The kite feeds entirely on a single species of large snail. The lone hope for the kite....is to restore and maintain adequate water areas in which the snails flourish and the kite may find ample marsh vegetation for nesting."

I was curious about the identity of the species of snail (fresh water, I discovered from a bird book) so casually mentioned although it is apparently in almost as serious danger as the kite.

My curiosity was satisfied when the item was repeated, apparently as a "filler", on August 25th -- the species is *Pomacea caliginosa*.

But when will we conchologists become unified and strong enough to see that endangered molluscan species get the same public concern, or even press notice, as threatened bird species?

. . . C. M. SCHMITT

WE WELCOME THESE NEW MEMBERS:

Robert Jesselson, 26 Darewood Lane, Valley Stream, New York
John R. Lewis, 4915 Northcott Ave., Downers Grove, Illinois
Mrs. Kit Robbins, Hotel Blackstone, 50 East 58th St., New York, N.Y. 10022
Gaetan Simard, 440 Richard St., Joliette P. O., Canada
Donald R. Schoen, 11 Hamilton Ave., Bronxville, New York

NEW ADDRESSES FOR OLD FRIENDS:

Arthur S. Merrill, 128 So. Harrison St., Easton, Maryland
Mr. & Mrs. C. G. Bennett (Jo & Rusty), 101 11th St.-Ocean, Marathon, Fla. 33050
Paul Lennard, 39 Gramercy Park, New York, N. Y.
Israel Bendersky, 111-45 76th Ave., Forest Hills, N. Y. 11375
Broward Shell Club, c/o Mrs. Jean Redding, 517 S.W. 9th St., Fort
Lauderdale, Fla.

NEW YORK SHELL CLUB NOTES No.105 Oct. 1964

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NEXT MEETING: SUNDAY, NOVEMBER 8th, 1964, at 2:00 P. M.

PROGRAM: ELEUTHERA by Dorothy and Norman Jensen
OPISTOBRANCHS by M. K. Jacobson
SHELL-OF-THE-MONTH: HOMALOCANTHA SCORPIO Linne
by Anthony D'Attilio

WE RECEIVE A GIFT

The New York Shell Club has received through the generosity of our member Miss Mabel Bender her fine collection of shells and shell books. We are sorry to report that Miss Bender, to whom these shells have been a source of much pleasure and interest, has been seriously ill during the last year or two.

The members of the New York Shell Club are happy to receive this gift, and extend their deepest thanks to Miss Bender with continued good wishes for her health.

In order that the benefits of Miss Bender's collection may be equally dispersed among all members, it has been proposed to offer the shells at a New York Shell Club auction, the proceeds to be set aside as a special library fund in the name of Miss Bender. Her shell books, which will be listed in an early issue of the "Notes", are being added to the growing library of the Club. Further news regarding the contents of the shell collection and proposed auction will be noted in future pages of these "Notes".

A. D'A.

IN THE NEWS

JULY 6th, AKRON (OHIO) BEACON JOURNAL: An article entitled "An Exhibition of an Akron Man's Significant and Scientific Research into Conchology" tells of an exhibit of shells in the lobby of the Firestone Bank, from the collection of NYSC member Leon S. Pequignot. It was reported that the public relations director of the bank had lost no time in arranging for

the exhibit when he learned of the Pequignots' extensive collection which is housed in its own building. Lee and Mary Pequignot are long-time collectors of land, fresh water, fossil and marine species. "Notes" readers have enjoyed their occasional reports from Florida, but apparently their home town has just discovered them.

LIFE MAGAZINE OF JULY 10th reported on Mary and George Kline, well known NYSC members who have enthralled us with reports of their expeditions. The article, "Shells", highlights their work and travels in connection with their hobby. LIFE photographer Nina Leen made some spectacular color photographs of some ten exotic species including Conus gloriamaris.

NEW YORK WORLD TELEGRAM AND SUN, JULY 31st: An item describing what is evidently a countermeasure to the ravages of Teredo navalis. Datelined Mamaroneck, N. Y., the item reads: "H. A. Callahan, Inc., today announced development of a plastic that restores rotted wood so that it can be machined or hold screws... (it) is already being successfully marketed in the marine trade.... The plastic, called calignum, is injected into the rotted wood and, after about a week, hardens to a point where it resembles the plastic handle of a screwdriver."

FROM MR. YVES ROUGET OF L'ASSOCIATION LA FAUNE MARINE, BRUSSELS: "Our exhibition will be open this year in October and will last several months. I have put in a frame your Aequipecten irradians and its varieties...." The Aequipecten irradians to be displayed in the Belgian exhibition were collected by Arax and Edward Tricomi and were among shells contributed by NYSC members to L'Association La Faune Marine. Mr. Rouget sent beautiful specimens of the pecten Chlamys opercularis which are now in the museum collection. (Letter of August 17)

KRAUS REPRINT CORPORATION, 16 East 46th St., New York, N. Y. 10017, plans to reprint several of the out-of-print volumes of the NAUTILUS. An affiliate, BACK ISSUES CORPORATION (same address) has some of the back issues available separately from stock.

THE COLLECTION OF THE LATE JOSEPHINE WICHERN, consisting of shells and other marine items, was sold at public auction on September 26th. The collection was divided (by non-shellers) into 125 lots of very mixed material that were disposed of in 90 minutes.

Mrs. Wichern's card file, though available, had not come through intact, and it was with difficulty that we obtained what data we could. The experience, shared by several NYSC members, showed the advantage of having a data slip with each shell in addition to any master card file or ledger.

It was a confused ending of a collection, regardless of its modest value. However, we are glad to have acquired a few fine specimens from the collection of our late friend and associate.

dr

RICHARD WINSLOW FOSTER

Richard W. Foster, an Associate in the Department of Mollusks, Museum of Comparative Zoology, Harvard University, died in Rome, Italy, on September 3rd. He was 44 years of age. Mr. Foster succumbed to complications which had developed after an operation for appendicitis. He had stopped over in Rome on his way to the Indian Ocean to join the research vessel

"Anton Bruun" in Mozambique.

Mr. Foster was our guest speaker only last May. NYSC members will long remember the Fosters' visit and his presentation "Shelling in the Cook Islands in 1962". Our deepest sympathy is extended to his wife Anita.

Friends of Richard Foster are making contributions in his memory to the "Fund For Friends Of the Department Of Mollusks" at Harvard University.

WKE-DR

THE BROWARD SHELL CLUB will hold their first shell show on Friday, Saturday and Sunday, February 19, 20, 21, 1965. Dr. Clench will judge. For further information write to the Broward Shell Club c/o Mrs. Jean Redding, 517 S. W. 9th Street, Fort Lauderdale, Florida.

THE FLEMISH PAINTERS AND CERAMISTS, 833 Royal St., New Orleans 16, La., will handpaint your favorite species on 4 3/8" square tile in natural colors from your own specimen or from an illustration. $6.00 each.

BOOK REVIEW:

KEYS TO MARINE INVERTEBRATES OF WOODS HOLE REGION

ed. Ralph I. Smith, Contribution No. 11, Systematics-Ecology Program, Marine Biological Laboratory, Woods Hole, Massachusetts (1964) $3.50.

This is an extremely useful work which provides a (partly) illustrated key to most of the marine invertebrates that one can expect to find locally. It is soft covered with a strong spring binder.

The Mollusca are treated in Chapter 14 by W. Russell Hunter and Stephen C. Brown. The chapter consists of 37 pages containing much valuable ecological data in addition to the clearly worded keys for proper determination of the species. Six plates (three of which are devoted to the nudibranchs) are also of considerable help.

The nomenclature is quite up to date, but some anomalies do occur. According to Turner (Johnsonia No. 33, p. 27) the local borer is called *Barnea* (*Anchomasa*) *truncata* Say. Here it appears under the genus *Cyrtopleura*, the genus in which *C. costata* Linné (Angel Wing) is placed. *Brachidontes demissus* Dillwyn is subjected to a generic discussion and finally appears in the list as *Modiolus demissus* -- as good a generic designation as any -- though the authors apparently approve of *Arcuatula* on the basis of the discussion of Soot-Ryen (1955).

Some less familiar names are also present: *Cylichna alba* Brown, but not *C. oryza* Totten; *Colus pubescens* Verrill, but not *C. islandica* Gmelin (according to Henry Poirier, *Colus* is feminine); *Cingula aculeus* Gould, which appears as *Onobus aculeus* in Johnson's list. The only Epitonium cited is *E. rupicola* Kurtz, but it is hard to believe that species like *E. humphreysii* Kiener and *E. multistriatum* Say do not also occur there. Likewise the absence of *Turbonilla* and *Mangelia* is surprising.

This publication is an absolute "must" in the library of anyone who is interested in the local marine fauna. It can be obtained by writing to Mr. Ott Schweidenback, Supply Department, Marine Biological Laboratory, Woods Hole, Massachusetts. The price of $3.50 is postpaid.

. . . . M. K. JACOBSON

THE BUSIEST DAY

by Marian M. Schroth

At a convention every day is a busy day, with meetings or other activities scheduled for morning, afternoon and evening. The Annual Meeting of the American Malacological Union in New Orleans was no exception, but Thursday, July 23, 1964, was the BUSIEST day for me. That was the day of the Field Trip, which this year was split into two sections. One group went dredging in Lake Pontchartrain. My roommate Julie and I joined the group that went by bus eastward from New Orleans along the Gulf coast. Dr. Harold Dundee was our host and guide and, using a megaphone, gave us an animated flow of tourist information that kept us interested all the way to Mississippi.

Our first stop was at Fort Pike, Louisiana. This is on an outlet for Lake Pontchartrain and the water has rather low salinity. On the grass stalks at the edge of the water we found *Neritina reclivata* by the score, a fair number of *Littorina irrorata*, and just a few *Melampus bidentatus*. The muddy bottom was so full of dead vegetation that it would not wash through my sieve. There were bleached single valves of *Rangia cuneata* and a few ark shells in shallow water. A parking area was being filled with dredged shells from Lake Pontchartrain, and a truckload of that material was spread out on the ground while we were shelling. We found a good number of live *Rangia cuneata* among the broken valves and dirt.

At the rest stop several girls looked for land shells, but collected only mosquito bites.

The second shelling stop was at Clermont Harbor (Bay St. Louis) Mississippi. *Neritina reclivata* and *Littorina irrorata* were found living on the grass and hundreds more of the *Neritina* were to be seen on numerous wooden pilings in the water and even on the concrete sea wall beyond the beach area. The bottom was a little more sandy than at Fort Pike, but sieving produced no mollusks. There were bleached single valves of oysters and *Rangia*. Dr. Clench was delighted to find a large *Thais haemastoma haysae* Clench, complete with hermit crab.

We stopped for lunch in a pleasant pine grove overlooking the water. While we were relaxing the clouds darkened and we had barely finished our box lunches when it started to rain. We got into the bus in no time at all and started off through a downpour that did not stop until just before we got to Gulfport, Mississippi, our third shelling spot.

At Gulfport, on Mississippi Bay, the sky was still dark with traces of lightning on the horizon, but that did not stop us from exploring the flats exposed by the low tide. Dr. Dundee told us that 25 miles of this coast was "filled" beach, the sand having been dredged and brought in from some 20 miles out in the Gulf of Mexico. We could not find the live *Tagelus* as Dr. Dundee had on a prior trip to these flats. We explored a large area of the flats and found a substantial number of all sizes of gastropod shells with hermit crabs inside. There were *Thais haemastoma haysae*, *Polinices duplicatus*, *Nassarius acutus* and *Nassarius vibex*. Some of the *Thais* (and perhaps others also) had small oysters living on the outside and *Crepidula plana* living inside. I wonder if the *Crepidula* and hermit crab tenants ever had "conflict of interest" problems. Sifting the wet sand through a strainer was unproductive, but at the high tide line there were many small beachworn shells that had washed out of the fill. There were single valves of *Anadara*, *Corbula*, *Mulinia lateralis*

and the ever-present Rangia cuneata. We were told that the small Oliva savana shells were fossils, and that some of the other shells might also be fossils. We were chased into the bus by the first drops of rain from another thunderstorm.

We continued eastward to the outskirts of Biloxi where, because of the rain, our fourth shelling stop was at a souvenir shop; here many members added more exotic varieties to their shell bags. Only one pair thought to stop at a nearby stand for a box of Biloxi shrimp to eat on the way back -- the rest of us finished off what was left of our excellent box lunches.

We got back to New Orleans just in time for rush-hour traffic, so reached the hotel later than planned. As the Annual Banquet was scheduled to start in less than an hour we scattered to our rooms, almost as fast as you can tell about it, to dress for dinner.

The Banquet was at Arnaud's, a famous restaurant in the French Quarter. At each place setting was a Cypraea (Zonaria) spadicea Swainson, collected by President John Q. Burch at Laguna Beach, California. Each data slip was signed by Mr. Burch, who noted: "This is the only cowry we have in California, but we are rather proud of it." Each person also received a set of pictures of Australian shells, prints of original paintings that had been commissioned by the Shell Oil Company. These, too, were obtained for us by Mr. Burch. The dinner was delicious from appetizer to ice cream, and included mollusks: For the first course both oysters Rockefeller and escargot were served. Before these plates were removed collectors went into action gathering the empty but still butter-coated escargot shells which Dr. Abbott identified as Helix leucorum Linné from Central South Europe. After dinner President Burch addressed us briefly then Dr. William Clench, the main speaker, had many delightful tales to tell about his shelling and shell-related experiences.

It was a pleasant walk back to the hotel, just a few blocks away. Then back to our room, to take care of the shells, still-wet sneakers, etc. that had been dropped so quickly after returning from the field trip. The first thing we knew it was 1:30 A. M., and we fell into bed for a few hours' sleep. The morning session was to begin at 9 A. M. and we knew President Burch started promptly. Dr. Abbott was to be the first speaker and naturally we didn't want to miss his talk about Indo-Pacific Mollusca.

Our busiest day had also been a very enjoyable one . . .

AN ANNOUNCEMENT

NYSC member Philip L. Hano announces that he has, now open for business, "a brand new shell shop with brand new (1964 collected) specimen shells... a comprehensive selection of world-wide uncommon and rarer shells for the advanced collector...All guaranteed to please and at very reasonable prices." He has a price list available at no charge and plans to publish a monthly listing of "new arrivals". He will handle mail orders, with all shipments fully insured. Mr. Hano invites you to visit his shop, the HANO SHELL DIVISION, at 1598 Third Avenue, New York, N. Y. 10028. Store hours are listed as 9:00 A. M. to 6:30 P. M. daily, and also by appointment. The telephone number is LE.4-6975.

IF YOU MUST SHELL WHILE IT SNOWS, Jim Moore, Sea Shell Supermarket, U. S. 41 North, Palmetto, Florida, will ship unsorted dredged material to you by the bushel for sorting at home.

KATSARAS' AUCTION, 1964

You never saw so many "irresistible" shells together at one time as were displayed on the long tables at Nick Katsaras' auction last September 20th. Nick called it his "World's Fair of Seashells" and indeed it was, with these molluscan works of art from all parts of the globe. The room was crowded -- even before 1:00 P. M. collectors were having to find places for observation from the adjoining room.

Visitor from farthest away was Donald Dan, of Manila, who frequently seemed entranced with collectors' responses to offers of shells from his own Philippines -- once in particular when a handsome specimen of the window-pane shell, Placuna placenta, was presented. When it was suggested to him that a supply of these in his luggage might have been to his advantage he responded, without taking his eyes from the shell, that this was the first "Kappice" he had ever seen in live-taken condition. (Here, half way 'round the world at Nick's auction!)

Next in miles traveled were visitors from St. Louis, then from somewhat lesser distances came New York Shell Club and Philadelphia Shell Club friends we see only occasionally -- including Dr. Abbott of ANSP who verified identification of a Conus prometheus during the auction. (Bill Old and/or auctioneer Anthony D'Attilio settled any other slight questions.)

These auctions of Nick's are always quite social (especially during intermission) but this time there were more of the very quiet, serious moments as collectors contested for rarities such as Murex bednalli, Voluta rossiniana, a superb Tibia fusus which was all of 9" and had its own operculum, a flawless Conus aurisiacus, a gorgeous Conus genuanus, the rarest Conus marchionatus, and other fine specimens. The Spondylus were exquisite -- and some went for surprising bargains. But you have the list -- from the beautiful Ancilla to the fascinating Xenophora.

This time Nick did NOT say "No more auctions!" We're curious to see what he can come up with next year to better this one.

WATER ISLE SHELLING

by Grace G. Eddison

Water Isle, a small island only two miles long in St. Thomas Bay, is a part of the Virgin Island chain. It is apparently known as a sheller's paradise -- small, few people, sand, coral, rock, and grass bottoms. J. A. Weber in 1956 and 1958 made two trips to the island and collected approximately 430 species which are listed in Nautilus of October 1961. I was able to spend one delightful week there in March, 1964, shelling to my heart's content. In this period of time I found, in general, only the more common species -- for one week does not allow for the hours of searching out special hiding places! I was particular and took only live specimens except for a few freshly dead bivalves (I did not find the beds where these lived).

Mr. Phillips owns the only hotel on Water Isle and is most helpful, but the week before my arrival his dredge had been stolen so much material from both deep and shallow water was missed. Most of the specimens were taken from rocks, either from the land or from the water, in depths of from 0 to 15 feet. There is a six inch tide, so nearly all specimens must be obtained by diving and snorkeling. I saw many large Strombus gigas Linné, Strombus costatus Gmelin, and one huge Charonia variegata

Lamarck all inhabited by huge crabs which were left to their own devices.

Below are listed the species I obtained in this period of time that supplement the list in Weber's paper: (I had collected 117 species in all.)

Tricolia thalassicola Robertson
Nerita fulgurans Gmelin
Neritina clenchi Russell
Strombus gigas Linné
Strombus costatus Gmelin
Purpura patula Linné
Ocenebra intermedia C. B. Adams
Antillophos oxyglyptus Dall & Simpson
Cantharus tinctus Conrad
Cantharus lautus Reeve
Olivella petiolita Duclos
Marginella gracilis D. B. Adams
Bulla striata Bruguière
Arca imbricata Bruguière
Brachidontes exustus Linné
Pinna carnea Gmelin
Atrina seminuda Lamarck
Ostrea equestris Say
Trachycardium muricatum Linné
Tellina exilis Lamarck
Ceratozona squalida C. B. Adams
Dentalium antillarum Orbigny

BEACHES WHERE I HAVE GATHERED SHELLS:
No. 2 -- WESTERN PORT BAY, VICTORIA, AUSTRALIA

by Vilma Wicks

Western Port Bay is approximately 35 air miles SSE of Melbourne, and is separated from Port Phillip Bay by Mornington Peninsula. It is popular for holiday makers and day trippers. The shoreline is rugged and has a lot of rock platforms, clean sand mostly, although at times a lot of weed is washed in.

On the eastern side there is mud beneath the sand in the water, otherwise the sand is similar to that of Port Phillip Bay. The population is smaller, as development has been retarded. However, Western Port Bay is now in the news for a development which would include a deep sea port servicing the southeastern part of Victoria.

I find the beaches of Western Port Bay to have a bigger variety of shells and marine animals than has Port Phillip Bay. This may be due to the larger tides and closer proximity to the ocean. Different species of *Phasianella* are to be gathered, including *ventricosus* which is thicker and rounder than *australis*. We also find the pretty *Stomatella imbricata*. The Paper Nautilus is washed in here, more often than at Port Phillip Bay. It's the early bird who gets these shells, as they are usually carried in overnight on the high tide and left high and dry on the beach.

In addition, the waters around Western Port Bay are very good for anyone fortunate enough to be able to do some dredging.

During our early history, from the eighteenth and nineteenth centuries, tremendous interest was aroused among the scientists of the day. Quoy and Garmard, two surgeons on the ship "L'Aristole" under the command of Admiral J. Dumont D'Urville, made many drawings of specimens found in Western Port Bay. There is an exciting story associated with one of the many early expeditions to Western Port Bay:

Among material dredged was a rather small bivalve -- alive. This was the subject of tremendous excitement as this bivalve, *Neotrigonia margaritacea*, was only known as a fossil from Europe. It is a rather drab brown outside with a beautiful heliotrope or mauve color pearly inside.

Although the hinge of this shell is classed as primitive, it is a master-

piece of perfection and rather complicated, and the shell (cabinet specimen) once closed is difficult to open. Maybe the reason for its being classed as primitive is to afford protection from many enemies perhaps unknown today. Jewellers use this shell to make up into brooches, and even mount them as souvenir spoons.

The species in New South Wales and Tasmania is much paler in color, almost white pearl.

Most of the early "Type" specimens found during those early expeditions are housed in European museums as at that time we had no museum. Quite a lot went into private collections and universities. A few were lost.

There are quite a lot of limpets and limpet-like shells to be found in our southern waters, probably because they can adapt themselves comfortably to the heavy sea conditions.

I must mention briefly Phillip Island, which is reached from the mainland by a bridge. It might be described as a barrier island between Western Port Bay and Bass Strait. Around the island are some good beaches interspersed with rugged rocky coastline. Shells are very apparent around the island. On the island there is a reserve for Koala Bears, a Penguin rookery, a section with the burrows of Mutton Birds, and across from the island is a very large "rock" called Seal Rock, which of course is inhabited by seals.

(No. 1 of Mrs. Wicks' series on Australian beaches appeared in NOTES #94.)

DR. COOMANS ACCEPTS NEW POST

Dr. Hennie E. Coomans, who came to our museum in 1960 after three years' work in the Netherlands Antilles, departs within a few weeks for Amsterdam. He is accepting the position of Curator of Mollusks in the Zoologish Museum, Amsterdam, Netherlands, on the retirement of the present curator, Dr. van Benthem Jutting.

We congratulate Dr. Coomans on his appointment and wish him and his family all success in the new situation. But we here will miss him. He has been a good friend and teacher to the many NYSC members who have consulted him on matters conchological and malacological. We hope for continued communication with him in the years ahead.

WELCOME HOME! Dr. Donald T. Bosch, who has been stationed in Arabia these last few years, is now at 290 East Franklin Turnpike, Hohokus, N.J.

WE WELCOME THESE NEW MEMBERS, WHO JOINED US IN OCTOBER:

Mr. & Mrs. Raymond J. Braun, 240 E. 76th St., New York, N. Y. 10021
Mr. & Mrs. William Fisher, 63-59 Booth Street, Rego Park, N. Y. 11374
E. C. Hassett, 224 East 74th St., New York, N. Y. 10021
Mr. Michael Landfear &
Mr. Scott Landfear, 74 Raymond Avenue, Nutley, New Jersey
Miss Rosemary Pascal, 75-05 113th Street, Forest Hills, N. Y. 11375
Mrs. Ronald E. Renman, 40 Stony Hollow Road, Centerport, L. I., New York
Mr. Al Scarpetti, 283 West 11th St., New York, N. Y. 10014

NEW YORK SHELL CLUB NOTES No.106 Nov. 1964

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR. Notify Corres. Sec'y of any change in address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, DECEMBER 13th, 1964, at 2:00 P. M.

PROGRAM: SHELLING IN SCOTLAND
by Mathilde Weingartner. (With color slides)
SHELLING WITHOUT GETTING YOUR FEET WET
by Nick Katsaras
SHELL-OF-THE-MONTH

ARTHUR MERRILL ADDRESSES NYSC:

At our October meeting we had the pleasure of hearing Arthur S. Merrill, of the Bureau of Commercial Fisheries, U. S. Fish and Wildlife, speak on "Biological Use of Organisms Collected from Navigation Buoys". Now at the Bureau's Biological Laboratory at Oxford, Md., for several years he was stationed at Woods Hole, Mass., during which time he made extensive studies of the sea scallop, Placopecten magellanicus Gmelin. In addition to work in the laboratory and on the buoys, he went out with the commercial boats which dredge usually in depths from 30 to 60/70 fathoms and up to fifty miles offshore. There he observed not only the scallops but also much interesting "trash" dredged up with them:

Mr. Merrill showed us color slides of living sea scallops, the upper valves of which bore veritable forests of living organisms: seaweeds, tube worms, tunicates, ascidians, bryozoans, anemones, barnacles, molluscan egg cases, etc. One especially large mass fixed atop a scallop, and including sponge, weighed one-half pound waterborne! Some of the encumbering organisms, such as a creeping bryozoan, do no harm to the scallop itself (though perhaps marking the shell so that it would never become a cabinet specimen), but others - particularly a species of sponge and a hydractina - will grow around the marginal edges to the inside of the valves and become a menace. Mr. Merrill showed us a picture of one scallop which had five times put out new marginal edge at an angle to avoid an obstructing hydractina. It seemed to be a contest to see which one could grow the faster! There was deformity also in gastropod shells, the snails having enlarged their apertures when the encroaching hydractina spread to the inner side.

The collecting from the navigation buoys was done with the cooperation of the United States Coast Guard Service. The buoys must be brought in at regular intervals, usually one to two years, for servicing which includes scraping off the encrusting growths before repainting. These buoys make excellent field stations, and marine animals attaching inside the stabilizing tubes grow in this shelter into fine, true specimens with the exact data of location, time elapsed, known currents and, in the case of a buoy near the Nantucket Shoals lightship, daily readings of surface and bottom temperatures. Such data is extremely valuable in studies of spawning seasons, pelagic duration and growth rates.

Mr. Merrill has examined and collected from buoys from Maine (where kelp is the chief fouling organism) to Miami (where favorite shells are frequently included in the biomass). He has made innumerable counts -- he told us of one buoy with 55,000 attached spat after seven months in the water, and of another with 10,000 young *Pecten magellanicus* that were all counted! There were slides of the young *Pecten magellanicus*, which "sets" when 3 mm. and is not recognizable as the sea scallop it is until it grows to about 16 mm. Until Mighels (1843) obtained a growth series of this sea scallop he thought the very young a rare species and named it *Pecten tenuicostatus* (Mighels and Adams, 1841), a name that persisted too well.

The blue mussel, *Mytilus edulis*, was recognized as the champion grower - a fact much appreciated by European mussel farmers but here mostly considered merely a perennial "fouling organism". Samples taken from the anchor chains of buoys showed the greatest concentration of mussels near the surface, but they were attached down to a 100 ft. depth.

A less familiar mussel found among the fouling organisms is *Musculus discoid* which after attaching with its byssus continues to "spin" and builds itself a nest. A series of pictures showed the *Musculus* extending its foot and positioning threads until its shell was almost completely enclosed. It was figured that over a three day period of nest building 300 byssal threads were used and bound together with mucus.

A laboratory study was of *Odostomia*, the various species of which are parasitic on oysters, clams, scallops, etc. This tiny pest inserts its proboscis between the valves to feed on the host. As a bivalve with one valve removed (so that the process could be observed) could not be expected to react as under natural conditions, the univalved gastropods *Crepidula fornicata* and *Crucibulum striatum* were used as "stand-ins". After these gastropods had positioned themselves on clear glass in an aquarium, several specimens of *Odostomia seminuda* were introduced into the tank and soon crawled onto the *Crepidula* and *Crucibulum*. Through the clear glass the action was observed and photographed: the hosts were watched as they withdrew their mantles in the area of *Odostomia*'s attack, however *Odostomia*'s proboscis was so long that it could reach in to the body flesh of the host animal. When *Crepidula* reacted by clamping down very tightly to the glass the *Odostomia* was seen to withdraw its proboscis. We wonder how many molluscan species can so protect themselves.

During the question period Mr. Merrill answered that though regionally the fouling organisms are of similar substance, the biomasses are not identical in content or vertical arrangement.

In addition to giving us a most interesting and informative afternoon, Mr. Merrill left with us several reprints of his papers on these subjects. We greatly appreciate his consideration in contributing this literature to our library.

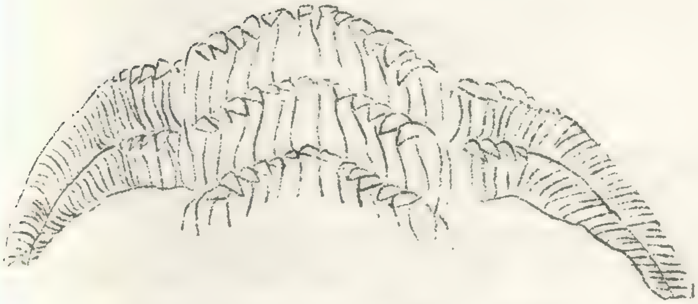
The following Key is in summary of Mr. Jacobson's presentation before the New York Shell Club on September 13th. We suggest that you refer also to his outline in NOTES No. 104, pages 6 and 7. - - Ed.

TABLE OF PROSOBRANCH RADULAS

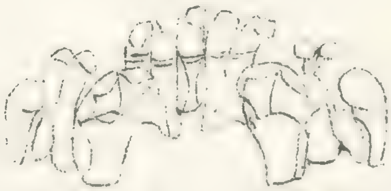
Archaeogastropoda:

rhipidoglossate radula -- large number of marginals arranged in a fan pattern like an open fan (fan-tongue).

docoglossate -- more than one central tooth, generally brown or reddish, not glassy or white, found in the limpets (beam-tongue.)



rhipidoglossate



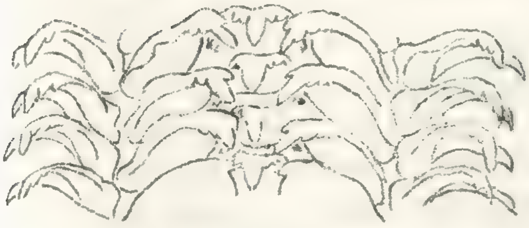
docoglossate

Mesogastropoda:

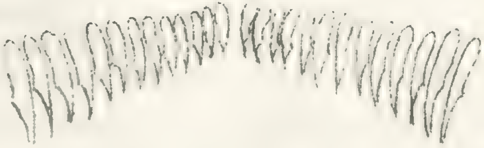
taenioglossate -- central tooth is large with several cusps, the central cusp usually the largest; found in all mesogastropods except in Epitoniidae and Ianthinidae (ribbon-tongue).

ptenoglossate -- teeth undifferentiated except in size, outermost teeth largest, innermost smallest so that the pattern is that of a flying bird (bird-tongue) - Epitoniidae and Ianthinidae.

gymnoglossate -- radula obsolete, generally in parasitic species (hidden-tongue).



taenioglossate



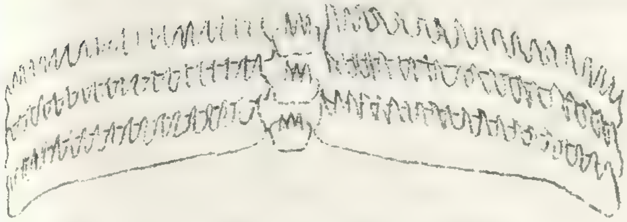
ptenoglossate

Neogastropoda:

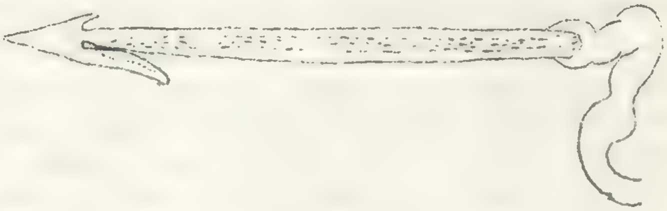
rachiglossate -- narrow tongue with only three teeth, central one largest, armed with numerous, rake-like cusps (ridge-tongue).

(Neogastropoda continued:)

toxoglossate -- harpoon-like teeth generally capable of transmitting poison through a central tube (in Conus, Terebra, some Turridae) (arrow-tongue).



rachiglossate



toxoglossate

Other terms:

Stenoglossate (narrow-tongue) generally applied to the Neogastropoda which have tongues of three or fewer teeth.

Glossophora (tongue bearers) applied to all mollusca which are provided with radulae, i.e. all classes except Bivalvia.

Odontophore -- the ribbon on which the radular teeth are arranged.

Unicini -- marginal teeth.

CORRECTION:

In the notes on the Prosobranchia that appeared in NOTES No. 104 (p. 6), the Cypraea appeared in the key in the Holostomata (whole lipped.) Actually they should be in the Siphonostomata, since they clearly are provided with a notch for a siphon. The Olividae and relatives also belong here.

. . . . M. K. JACOBSON

(The above sketches showing the lateral arrangement of teeth on the radular ribbon (the odontophore) were traced by Anthony D'Attilio from illustrations on page 1105 of "Treatise on Invertebrate Paleontology, Part I, Mollusca I, General Characteristics of Gastropoda", Geological Society of America, University of Kansas Press, 1960. The chapter on radula is by L. R. Cox.)

KEPPEL HARCOURT BARNARD

Word has been received from the South African Museum in Cape Town: "It is with regret that we have to inform you that Dr. Keppel Harcourt Barnard died suddenly on September 22, 1964. He has worked at the South African Museum since 1911 and was the Director from 1946 until his retirement in 1956. He was actively engaged in his malacological research up to the time of his death."

Dr. Barnard authored numerous papers on South African marine mollusks.

. . . W. K. Emerson

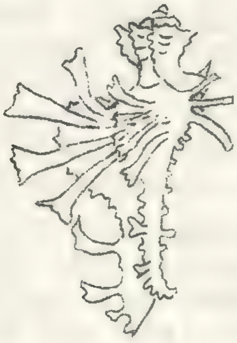
HOMALOCANTHA SCORPIO Linne´

1758 Linne C., SYSTEMA NATURAE

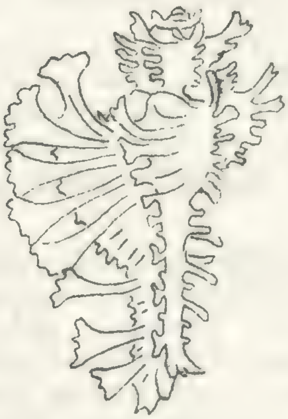
It is of interest to note regarding this long known species that specimens from the Philippines are somewhat separable from those usually found illustrated in 19th century literature and their counterpart specimens found in the older collections. It is probable that these older shells are from a locality rather separate from the Philippines.

The differences are as follows: In addition to the major spiral rib on the shoulder, the present-day Philippine shells have a second rib directly above the shoulder; below the shoulder there are three other ribs making a total of five. Specimens illustrated in the 19th century shell books as well as the shells collected during that time have a total of only four major ribs. Distribution of the present-day collected specimens, based on data now available to the writer, is from Cebu to Palawan Islands in the Philippines. Data on 19th century shells is not entirely reliable but the Moluccas and Celebes Islands of Indonesia are frequently indicated.

A large specimen from the Philippines, among 18 examined, measures 57.5 mm.



Locality ?



Philippines,
present day.

. . . Anthony D'Attilio

PALM BEACH COUNTY SHELL CLUB SHOW FEBRUARY 10-14

NYSC members and friends are invited to attend Palm Beach County Shell Club's annual show to open on Wednesday, February 10 and run through Sunday, February 14, at the Lake Worth Casino on the ocean. Norma Brown, president, writes: "There will be 60 cases of shells from all over the world and, as always, many tanks of live shells. The judges will be Dr. Gilbert L. Voss, Dr. Donald Moore and Dr. Frederick Bayer of the Marine Laboratory of the University of Miami. . . The Academy of Natural Sciences makes an annual award to the best exhibit."

ST. PETERSBURG SHELL CLUB SHOW MARCH 24-28

From the October issue of the "Shell-O-Gram", Jacksonville (Fla.) Shell Club's paper, we learn that the St. Petersburg Shell Club is planning their 18th annual shell show, to be held at Bayfront Center March 24-28.

SHELLING AT ST. JOHN, VIRGIN ISLANDS, 1964

by Ethelyn Woodlock

The beaches at St. John were rather bare when I was there early this year, due to high surge and winds. At Denis Bay Plantation (private) there was a point of land directly under the huge stone Christ of the Caribbean. Here, sheltered by reefs, were the best miniatures including a perfect *Micromelo undata*. At Coral Bay on the south shore we dug *Asaphis deflorata* by the dozens, fresh dead but still so colorful.

A friend gave me two *Cyphoma gibbosum* which crawled around the jar for the usual 48 hours. I wish there could be a way to preserve their beautiful spotted mantle. And there was a *Conus bermudensis*, rare for as far south.

The real treasures were in piles of locally dredged sand in the back yard. It broke my heart that it all went in the cement mixer for my friend's swimming pool! The year before I had found the rare deep water *Mitra fluviimaris* and promised Bill Old that another such find would be for the Museum. The first evening I looked in the sandpile there was a *Mitra*, right on top! At daylight, the next morning, the winds had exposed two more, and the last morning the fourth specimen. All four are perfect specimens. This goes to prove that many are down there but we cannot go down to pick them. (R. T. A., please note!)

The question mark after *Fuscinus benthalis* is Bill's, who will have to look through slides as the Museum does not have one to compare it with. Another rare shell, a bivalve, is not identified. It is of the *Anomiidae* family yet has no hole in the lower valve. This is cream colored with pinkish radial lines. The two *Latirus*, *infundibulum* and *virginensis*, are nice deep water specimens.

A package with 63 specimens has been sent to Hugh Mueller, National Park Cruz Bay Marina, who displays mostly fauna and flora but few shells. A small workroom has one cabinet for shells. Anyone visiting here please try to convince him that people walk the beautiful beaches more than the woods and hills. The "tenting" has been moved to Cinnamon Bay where there are also a few "units" to be rented reasonably. There is actually a gushing well for (rare) water and a store. What more could one need? With a shelling beach within yards after rolling out of bed at daybreak!

A Bimini trip was still windy, yet I returned with the usual bushel or so. Only *pieces* of *Strombus gallus*, but I know where I am going to look for them next year! We stayed on South Bimini at Sunshine Inn where *Pyramidella dolabrata* were washing in by the dozens, *and* a huge *Sinum maculatum*. North Beach yielded many wee ones, many *Sinum perspectum* and a perfect specimen of the rare *Fenimorea janetae*, another "first find".

On the Bay side, *Tellina radiata* were in profusion as well as hundreds of *Lucina pensylvanica* and huge *Terebra hastata*. *Conus verrucosus* were coming up by the thousands at low tide. I picked many juvenile *Strombus* with a twisted look that I feel are *Strombus gallus*. The beds are supposed to be out yonder but if you wish to mix snorkel gear with shark, do so at your own risk! I'D rather go to that secret place where the water is shallow! I was told that they do not come *up* at low tide, as do the *gigas* and *raninus*, but keep all but their tip buried under the sand.

The week at Sanibel netted my third JUNONIA!!! And the Janthina rolled again on the east coast. This seems to happen every third year. Boxes

containing over 3,000 came home with me. The Janthina jars were recounted and resorted. The total count was over 8,000! Does anyone know of another soul who has cleaned as many? Outside of a gull, perhaps?

Shells are so wonderful -- and the fun is in the finding.

Shells from St. John, Virgin Islands

These species are in addition to those listed in the New York Shell Club Notes No. 95, October 1963, p. 7

Aequipecten gibbus
" muscosus
Anachis mangelioides
" pulchella
Antigona listeri
Arca zebra
Aspella paupercula
Bailya intricata
Calliostoma pulchrum
Cerithium algicola
Chama congregata
Chione paphia
Chlamys imbricata
Codakia costata
" orbiculata
Conus verrucosus
Coralliophila abbreviata
Crepidula convexa
Cymatium vespaceum
Dentalium antillarum
" gouldi
Detracia bullaoides
Diodora dysoni
" veridula
Divaricella quadrisulcata
Donax denticulatus
Drymaeus virgulatus (land)
Echininus nodulosus
Emarginula phrixodes
" pumila
Fissurella angusta
" barbouri
" rosea
*Fuscinus benthalis ?
Haminoea petiti
Hipponix antiquatus
" subrufus
Hyalina tenuilabra
Jaspidella jaspidea
*Latirus infundibulum
* " virginensis
Lima scabra
Lucina blanda
" pensylvanica
Lucapinella limatula
Macrocallista maculata
Marginella gracilis
Melampus monile
*Mitra fluviimaris
Micromelo undata
Modiolus americanus
Murex pomum
" cellulosus
Nassarius ambiguus
Ostrea frons
Olivella minuta
Papyridea semisulcata
Pecten ornatus
" ziczac
*Phalium granulatum
Planaxis nucleus
Pinctada radiata
Pinna carnea
Plicatula gibbosa
Puperita pupa
*Pycnodonta hyotis
Retusa candei
Risomurex roseus
Rissoina bryera
Semele bellastriata
Smaragdia viridis
Tellina alternata
" radiata
Terebra hastata
Tralia ovula
Transennella cubaniana
" stimpsoni
Tricola affinis
" bella
Triphora melanura
Trishoplita pallens (land)
Trivia nix
" suffusa
*Turbo castanea
Turbonilla elegans
" interrupta
Vanikoro sulcata
Xenophora caribaea

+ one bivalve as yet unidentified.

* in deep water dredged material.

Complete total = 196 species.

VOLUNTEERS AHOY!

Many hands will be needed to prepare for AMU's visit to New York next summer. Many skills will be needed, and among us we have those skills: artistic, business, clerical, entertainment, handicraft, organization, transport, shopping, etc. Won't you let us know in what category you would like to help? Anne Hunter has volunteered to get information and coordinate work concerning decorations, place cards, table souvenirs. Do get in touch with Bill Old and let us know how we can call on you.

The New York Shell Club is indebted to our member

MISS MABEL BENDER

for this fine assortment of books that have been added to our Club library:

FIELD GUIDE TO THE SHELLS (Atlantic and Gulf Coasts)	by Percy A. Morris
FIELD GUIDE TO THE SHELLS (Pacific Coast and Hawaii)	by Percy A. Morris
A BEGINNERS GUIDE TO SOUTH AFRICAN SHELLS	by K. H. Barnard
SEASHORES	by H. S. Zim and L. Ingle
A CATALOGUE OF RECENT MOLLUSCA	by Walter F. Webb
HANDBOOK FOR SHELL COLLECTORS	by Walter F. Webb
HANDBOOK OF ILLUSTRATED SHELLS IN NATURAL COLORS . tion, First. Many new names proposed here	by Kira. (1954 Edition, First. ... from Kuroda ms..)
SEA SHELLS OF TROPICAL WEST AMERICA	by Myra Keen
LIFE OF THE SHORE AND THE SHALLOW SEA	by D. P. Wilson
THE SHELL BOOK	by Julia Rogers
AUSTRALIAN SHELLS	by Joyce Allen
INTRODUCING SEA SHELLS	by R. Tucker Abbott
HOW TO COLLECT SHELLS (A Symposium published by the American Malacological Society.)	
DICTIONARY OF SHELLS	Popular Paper Back
SEA SHELLS	How and Why Series
A CHILD'S BOOK OF SEA SHELLS	W. M. Hutchinson
WORLD WIDE SEA SHELLS	by Maxwell Smith

EXCHANGE WANTED

"To the New York Shell Club:

I'm writing to you in the hopes of finding someone that would like to trade shells with me. Although I've been collecting several years I'm brand new at trading so I've nothing but self-collected specimens from Florida to offer. I collect primarily in the Tampa Bay area and in the Ten Thousand Islands with a small boat. My material is excellent but I am admittedly an amateur. If there is anyone in your club who would like to exchange for Florida shells, please pass along my name and address to them. I would consider trading my shells for books on related marine subjects. Thank you.

Kitti Westfall, 6909 Haines Road, Pinellas Park, Florida.

AMAEA MITCHELLI

The Gulf Coast Shell Club is compiling a register of Amaea mitchelli, the "Mitchell's Wentletrap", similar to the register the Hawaiian Shell Club is making of the Golden Cowry. They would like to have the length and width measurements in millimeters and all available data. Send such information to: Gulf Coast Shell Club, c/o Mrs. J. B. Bishop, 2245 Wilson, Beaumont, Texas.

We are happy to welcome these new members, who joined us this month:

Miss Dorothy Maskaleris, 310 E. 51st St., New York, N. Y. 10022

Mr. Charles Messing, 29 Garwood Road, Fairlawn, New Jersey 07410

NEW YORK SHELL CLUB NOTES No.107 Dec.1964

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR. Notify Corres. Sec'y of any change in address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JANUARY 10th, 1965, at 2:00 P. M.

PROGRAM: ADAPTATION IN MOLLUSKS By Dr. Josef Vagvolgyi

SHELL COLLECTING IN MUSCAT, OMAN, ARABIA
By Dr. Donald T. Bosch (With color slides)

SHELL-OF-THE-MONTH To be announced

PROGRAM NOTE: Our first program of the New Year promises to be most interesting and informative. Dr. Vagvolgyi was formerly with the Budapest Museum. Since coming to this country he has been associated with the Academy of Natural Sciences in Philadelphia and the University of Florida, was a graduate student at Harvard under Dr. Clench and is now teaching evolution at Brooklyn College.

Dr. Bosch is the only resident surgeon in Muscat, Arabia. It was there that he became an amateur shell collector and while there joined the New York Shell Club as a corresponding member. He is home on a one year's leave and will be returning to Arabia next summer.

DR. COOMANS NOW IN AMSTERDAM

A letter from our friend, Dr. Hennie E. Coomans, until recently with the American Museum of Natural History, tells us that he is getting settled preparatory to taking over his new post as Curator of Mollusks in the Amsterdam Museum. Friends will want his new address:

Zoologish Museum
Plantage Middenlaan 53
Amsterdam, Netherlands

November 15, 1964

An open letter to
all American Malacological Union member shell clubs

Dear Friends:

It has come to our attention that some of you do not understand the aims, activities and scope of the organization of which, as active members, you and your club are a part.

The somewhat weighty title 'American Malacological Union' means just that - a group of persons united in a common interest, the study or perhaps only the appreciation of mollusks and their shells. It is a scientific society though less technical than many similar organizations since three-quarters of the AMU members are amateurs.

Nearly all professional American Malacologists are AMU members and they are deeply conscious of the great contribution the amateur is making to the science of malacology. By doing field work, furnishing specimens, making observation of molluscan habits the scientist has not the time nor perhaps the opportunity to see for himself - these are among the invaluable services the non-professional may render to the science of malacology.

The AMU was organized in 1930 by still another amateur, Mr. Norman Lermond of Thomaston, Maine. Only two or three widely separated shell clubs were then in existence, and he recognized the convenience of bringing together interested persons for the common good of all.

The first meeting was held in Philadelphia in 1931 and since then annual meetings have been held (except during World War II) at one or another place in the United States, Canada and once in Cuba.

In 1947 the Pacific Division of the AMU was organized. That group makes up about one-fifth of AMU membership and also holds annual meetings, usually on the California coast.

All persons whether or not members of the AMU or its Pacific Division are welcome to attend these meetings. Advance notices are furnished your club, and each year a report in booklet form reports on the most recent annual meetings, the year's activities of affiliated shell clubs as well as an up to date listing of the names, addresses and especial interest of all AMU members. These annual report bulletins are a valuable addition to your club library.

Many of the AMU member clubs issue publications on a monthly or annual basis and are expected to place the AMU on the mailing list to receive such publications. They are carefully filed against the time the AMU acquires a library, meanwhile are available as reference material for clubs or individuals.

Annual AMU membership for shell clubs is $6.00, payable each January 1st. Annual dues for individual AMU members is $3.00 and all who wish to join are most welcome; a supply of application forms has been furnished all club secretaries.

The AMU secretary maintains what amounts to an information bureau since hundreds of letters arrive each year with questions on many subjects. Those wishing to know of the nearest shell club, of a supplier of specimen or craft shells or of literature are promptly answered. If

a question is asked beyond the secretary's ability to reply it is sent to an expert who may be expected to answer directly.

Another query is being made with increasing frequency as letters arrive from foreign collectors desiring to set up exchanges of shells with American collectors. Any club whose members are willing to exchange shells is invited to inform the AMU secretary who will be happy to forward such letters from the foreign collectors.

Unless your club is affiliated with the AMU you would not be reading this letter. We trust, then, it has served to end any confusion as to the advantages of the association. We need one another!

Yours sincerely,

THE AMERICAN MALACOLOGICAL UNION

PUBLICATIONS:

VAN NOSTRAND'S STANDARD CATALOG OF SHELLS

224 pages, 221 illustrations, paperback, $4.50. Available at book stores or from the publisher, D. Van Nostrand Co., Inc., 120 Alexander Street, Princeton, New Jersey. Listings, Prices, Guide to Illustration, Regional Quick Lists, Geographical ranges and World Size Records of Marine Shells of the World. Edited by Robert J. L. Wagner and R. Tucker Abbott.

COLLECTORS' SHELLS AVAILABLE

Our members Shirley and Bill Fisher (Mr. and Mrs.) have asked us to inform club members that they carry a varied line of collectors' shells in their Coin and Shell Shop.

They have recently been very fortunate in having the opportunity to buy a few complete shell collections, among which are some originally from the Webb Collection.

Prices are promised to be very reasonable, and the Fishers invite you to visit them in their Coin and Shell Shop at 63-59 Booth Street, Rego Park, Queens. (That is two blocks south of Alexander's Department Store at Queens Boulevard and 63rd Drive.) Their hours are from 10 AM to 7 PM daily and to 10 PM Mondays and Fridays -- but a phone call (IL.9-1654) after hours will usually find the Fishers still there, cataloguing their numerous shells.

(If you should write, add "New York" to the address we gave you above..Ed)

THE CLUB WELCOMES THESE NEW MEMBERS:

Mrs. Frank Gallagher, 4970 Grandview Drive, Peoria Heights, Illinois
Mr. and Mrs. Salvatore H. Migliaccio, their daughter, and their son Christopher, 306 Fisher Ave., White Plains, N.Y. 10601
W. S. Murphy, 116 East 83rd Street, New York, N. Y. 10028

CIRCLE THESE DATES ON YOUR NEW, 1965, CALENDAR: Jan. 10, Feb. 14, Mar. 14, Apr. 11, May 9, June 13, July 20-23 (AMU), Sept. 12, Oct. 10, Nov. 14, Dec. 12. . . . AND HAPPY HOLIDAYS TO YOU ALL!

A GRAVEYARD IN MADAGASCAR

William E. Dodd, M.D.

It was a Sunday afternoon in late October (1960) and the laboratory of the Station Oceanographique, Nossi-Bé, was quiet and all but deserted in strange contrast to the hustle and bustle of the preceding six weeks. The members of the expedition to Nossi-Bé from the Academy of Natural Sciences in Philadelphia were going home. All but two had already left. The two professional scientists and the four amateur malacologists from the Philadelphia Shell Club had worked long hours, seven days a week, since their arrival on the tiny island off the northwest coast of the Madagascar mainland. They had arrived by different routes and from different directions and now they were departing by as many different paths. Ruth Ostheimer, lugging a small stainless steel dredge, had left by Air France for the island of Mauritius where she was to join Virginia Orr. Together they planned to look for more shells. Minerva Buerk had flown to Tananarive where she had engaged a guide to take her to the rain forests on the eastern slope of the central plateau of the great island, there to search for tree snails. Dick Foster had already left for Tukár on Madagascar's southwest coast. John Ostheimer was somewhere in the interior of Africa.

Arthur Humes and I were the only ones left. We had worked hard packing the hundreds of pounds of specimens and equipment. Packing cases, crude boxes, and crated milk cans containing dried or pickled mollusks were piled high on the upper porch of the laboratory awaiting clearance by the government authorities. I sat upon one of the boxes beside the pile of crates, and looked out over the tops of the young coconut palms at the blue waters of the bay beyond, and daydreamed. Beyond the bay the steep slopes of the peninsula, clad in the green of the government forest, rose toward the sky and patches of fleecy white clouds.

My thoughts carried me back to the day when I stepped off the plane in Tananarive, where I was met by a representative of the Institut de Recherche Scientifique. I remembered going with him to his laboratory at the Zoo and watching him feed his lemurs. I remembered a large crocodile sleeping in an improvised pool which was scarcely bigger than the reptile itself. The label told of its capture on the northeast coast of Madagascar, not far from Nossi-Be which was my destination. I learned that there are no poisonous reptiles on Madagascar but that there are other hazards, and that crocodiles and sharks infest the coastal waters where we were to work. I remembered hearing the beating of drums and the high-pitched whine of some sort of wind instrument. On investigating the source of the music I found that it was coming from a procession which was moving slowly along a hillside street a short distance from the Zoo. I inquired whether or not it was a funeral procession. . .

"Yes, in a way it is," my host answered, "but they are coming from the graveyard, not going to it. You see, these people have customs and beliefs which may seem strange to you. When an important member of a family dies, he is allowed to rest in his grave for a while. Then sooner or later someone suggests that it is time to dig grandfather up and give him a party. So they open the grave and carry the corpse through the streets accompanied by music and a procession of relatives and friends. They stop at some prearranged place, put the corpse in a position of honor, and proceed to have a party. When the festivities are over, they take

grandfather back to his grave and bury him until it is time to have another party."

I suggested that we get closer to the procession in order that I might take some pictures. My host shook his head and said:

"That would be bad! In the first place, no one is supposed to join the celebration unless they are invited. In the second place, these people have some strange beliefs about having their pictures taken. They believe that when someone takes their picture a portion of their spirit is taken away from them with the picture and follows it. They believe that after death the spirit leaves the corpse but hovers close by, and from time to time re-enters the corpse. During the time that the spirit is roaming about it may enter other living things and take partial possession of them. So be careful when you take photographs if you don't want a lot of pieces of spirits flying about you. Of course this is superstition, but you will be surprised at the large number of native tribesmen who completely or partially share this belief."

I remembered the days that followed -- arising before daybreak, sleeping on the open decks of boats with an anchor chain as a pillow, dredging, snorkeling, wading and turning over tons of rocks. I remembered the happy native boys and how some of them were a little camera shy. I remembered the fruit bats with four foot wing spreads, the termites, and the rat that invaded Arthur Humes' cottage.

I remembered the brief periods of relaxation after the evening meal, when we gathered on the porch of the main building and planned our work for the following days. I remembered that at one of these meetings our field director told us that, several years before when he was there working on a research problem, he had wandered up a gulley leading inland from the native village of Maduc. Here in the vicinity of a native cemetery on a hillside he had found several albino shells of Achatina folica. I had briefly thought of those snails several times since I heard Dr. Humes' story, but now that I was about to leave the island the "Story of the albino snails" seemed to me like a bit of unfinished business. There were still several hours of daylight left. Arthur Humes was busy with his books, and I had nothing else to do. . .

I followed the road that led to Maduc on foot, but was overtaken by Monsieur Fourmanjoir and his wife in their Land Rover. I inquired how to find the old cemetery up the ravine from Maduc. They said that I would never find it by myself, but that they would give me a lift to Maduc and then show me the trail leading toward the cemetery. We parked the Land Rover by the roadside at Maduc and found our way through the clusters of thatched huts which constituted the village. Groups of natives stood about, others looked from doorways. Children shouted and came running, only to be chased back by their parents. It seems that word got about that the white men who worked at the laboratory on the hills with bottles, jars, chemicals and magic were not like other people, but really were dead men without spirits. They were busy trying to capture other peoples' spirits. These they imprisoned in glass jars and from these captured spirits they were trying to fashion spirits for themselves. Some of the natives nodded in friendly fashion as we passed by, others looked on with silent, wide-eyed, open-mouthed wonder. At the edge of the village we followed a footpath which ran beside a small stream for about 200 yards across sugar cane land to the edge of the forest. Here

the footpath branched in three directions. Our way followed the general direction of the stream and twisted and turned beneath great trees with vines draping from their branches. The path was distinct at first. The brown-red clay was packed and polished by the treading of bare feet. As we went on the path divided and redivided, each branch losing itself in the tangled undergrowth of the jungle. The mountains seemed to rise on either side of us and soon we were in a deep ravine. The noises from the tree tops grew more intense and soon we saw a large group of lemurs traveling through the forest by jumping and swinging from branch to branch in the tree tops. There must have been about 75 of them. Monsieur Fourmanjoir was delighted. He exchanged a few hurried words in French with his wife and took off through the jungle after the traveling lemurs. Madam Fourmanjoir politely explained that although her husband was primarily an ichthyologist he was also interested in lemurs and was now anxious to observe whether or not more than one species traveled together in these groups. He had asked her to return to their Land Rover at Maduc and to wait for him there. She said that the old cemetery was about 200 meters further up the ravine on the left hand slope. I could easily find it. She politely refused my offer to accompany her back to the village, and quickly disappeared down the path.

The cemetery was not hard to find. It was situated in a little clearing about one-third up the left hand slope of the ravine. No path led to it and it was fast being overgrown by the encroachment of the jungle. At once I went about my search for the albino shells. Many of the tombstones had toppled over and I searched under some that I could lift, but with no success. I found many dead shells of Achatina folica. Some were bleaching white in the tropical sunshine near the center of the clearing, but by turning them over it was apparent that they were not albinos but only the ordinary kind whose upper surface was bleached by the sun. I searched the rock ledge at the downhill side of the cemetery, and under loose rocks found three varieties of land shells, all dead. I returned to the cemetery and the fallen tombstones. Here I continued my search. I had no pick or shovel with which to dig. Perhaps it was a good thing. Suddenly, I felt that I was not alone. I sensed that I was being watched. I looked carefully about but could not see any one. I could hear nothing but the usual noises of the jungle. Then it dawned upon me that perhaps it was not such a good idea to be caught digging in a graveyard all alone in a Madagascar jungle. The sun had gone down behind the mountain and it was getting darker. The sounds of the lemurs had also stopped. I picked up my shell bag and without difficulty found my way back to the path.

I was making better time going back than I did coming in, when suddenly on rounding a turn in the path I was confronted by a big native. He wore only a pair of somewhat soiled and torn trousers. He seemed to have come from nowhere. He carried a machete, the kind that are used in the cane fields. He said something which I could not understand. I shook my head. He then pointed with his machete to my bag of shells and said "Let see" in English. I poured out on the path the few shells I had collected. He looked at them carefully, turning them over with the point of his machete. They were all empty dead shells. Fortunately no live ones to be considered captive spirits. He then said "O. K." and I thought I saw a faint smile developing on his face. I am not sure. I scooped up my shells and looked up. The native was gone.

When I got back to Maduc the Land Rover was gone. The next day I was gone, too. The early morning plane had taken me back to Tananarive. Ahead of me lay Nairobi, Paris, and America. . .

AN OBSERVATION OF EPITONIUM RUPICOLA

by Dorothy Raeihle

On the occasion of a visit to the Philadelphia Shell Club last February 13th, Ronnie and Vivien Lowden presented us with five live Wentletraps, of the local species Epitonium rupicola Kurtz. They had found them in Delaware Bay the previous November 1st and had kept them in their marine aquarium. Mr. Lowden told us that they had collected several specimens at that time, but that now they were dying fast and he hoped these would live long enough for us to observe them. Freda Knauer considerately brought us some anemones (Sagartia luciae Verrill), food for the Epitoniums until we should find a supply. We carried the two jars carefully back to Elmhurst and within minutes of our arrival home had the mollusks in an aerated aquarium of their own.

All through the next day the three larger E. rupicola (which averaged about ½" in height) remained withdrawn into their shells, so quiet that I wondered if they had survived the trip -- but the two ¼" specimens were quite active and when a small anemone was introduced lost no time traveling almost six inches across the aquarium to feed on it. After two days in the new environment the larger specimens became active, then two of them started to feed. We watched, fascinated, as each Epitonium thrust its long white proboscis into the center of an anemone -- one right down into the oral cavity in the center of the anemone's ring of tentacles, the other up through the center of the anemone's base. They ate the soft tissues of the anemone, feeding until just a firm small nub was left of it. The little animals were entirely white except for their black eyes. Their tannish operculums were generally round, with traces of purple around the rather ragged edges.

Next day the Epitoniums were slightly disturbed when we drained and refilled their aquarium and they reacted by exuding a purple dye. This "royal purple" soon dispersed into the water, leaving only small streaks of tinted mucus on the sand and around the animals' operculums.

As I had read that some members of the family Epitoniidae feed on coral, I set a small piece of living coral (a Florida species) in a sand-filled container at one end of the aquarium. Though the E. rupicola climbed the shallow container and burrowed into the sand supporting the coral, as far as I could see during the several days it was in the tank not one of the five E. rupicola made even an exploratory reach toward the flesh of the coral. A small mussel, Mytilus edulis, was also left undisturbed.

The Epitonium rupicola seemed to be doing well in captivity. They were active and they fed at intervals on the live anemones -- after which they would withdraw into their shells for a day or so. They deposited egg cases -- tiny oval capsules 1¼ mm. to 1½ mm. long, in pairs, strings and clusters of as many as eleven capsules. Most of the egg cases were entirely coated with sand grains so that they were practically invisible against the sand in the aquarium. Observed without the coating of sand the egg cases were sturdy but transparent, as was the "tape" that connected the bases to form a string or cluster of the cases. Each case, or capsule, contained perhaps fifty creamy white eggs which hatched into minute swimming veligers. The animal showing through the shiny, translucent nuclear whorl gave the whole a tannish appearance. Under 100x I could see that there were two velar lobes fringed with fairly long cilia. They lived about two weeks, long enough to grow a bit.

The three larger specimens of the Epitonium died February 29th-March 1st, then the two small ones at intervals of ten days. There had been no lapse in their care; I do not know what was lacking in their food or environment. Each had been active one day, dead the next. Since then I have seen Mr. Lowden and he reported that his specimens had died at about the same time, after nearly five months in captivity.

A small body flushed from a quarter-inch shell showed a surprisingly large dye sac which left the paper stained purple. Working under magnification and using fine needles I started at the head and worked back, looking for a radular apparatus. Because of the deterioration of the specimen I could not determine the proper position of some parts of the animal. However, I finally found, much further back than I had expected, two thin discs each of which contained an abbreviated crescent of what seemed calcareous material. Posterior to these, in the now much mangled carcass, I found a section of shining substance that I had to put under 100 power to examine. This tiny oblong was studded evenly over its surface with minute curved teeth. This was radular apparatus of the ptenoglossate type, as described and pictured in NOTES No. 106, but the teeth were of a different shape than those illustrated in the article. I consulted JOHNSONIA -- this species' radula is not pictured, but the illustrations there (Vol. II, pp. 353,354) were quite similar and helped me very much in understanding the anatomy of this fascinating little species.

Dr. Joseph Abramson brought us a clipping from the "Dental Times" of September 16, 1964 reporting research by Dr. Heinz A. Lowenstam, professor of palecology, California Institute of Technology. We quote from the article which is entitled:

CARIES-IMMUNE IRON TEETH FOUND IN MOLLUSC

Chitons live on a diet of soft algae and use their teeth to scrape meals from rocks, in the process carving chevron-shaped gouge marks into rocks as hard as limestone. . . The molluscs, which have existed on earth some 500 million years, range from microscopic size to about nine inches long. Their backs are covered by eight calcareous plates that overlap and articulate. They have a snail-like movement, creeping on one large foot, which adheres to rocks or pilings.

The chiton has a total of 70 iron-clad teeth in two rows of 35 on a side attached to a tongue-like structure. The iron coating is two to three-thousandths of an inch thick and the teeth range in diameter from about one-fiftieth to one-twelfth of an inch. Some chitons have chisel-shaped teeth, while the teeth of others have two or three prongs.

New teeth are continually being formed in the throat of the mollusc and capped with iron over a protein base. The protein corresponds to the dentin in human teeth and the iron to the enamel. Both rows of teeth gradually move forward so that worn-down ones in front can be discarded and replaced. . . They offer the first evidence that biological processes are able to duplicate physical ones in precipitating concentrations of iron sufficient to cap and coat a tooth, according to Dr. Lowenstam.

X-ray diffraction photographs were made of their tooth specimens and compared with similar photographs of magnetite ore. The patterns were identical. Dr. Lowenstam has also found that some sea snails have heavy concentrations of iron in their teeth in the form of goethite. Although less hard than chiton teeth, they enable the snails to erode limestone.

NEW YORK SHELL CLUB NOTES No. 108 Jan. 1965

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR. NOTIFY CORRES. SEC'Y of any change in address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, FEBRUARY 14th, 1965, at 2:00 P. M.

PROGRAM: SHELL COLLECTING IN WESTERN AUSTRALIA
by Mr. Barry Wilson *
SHELL-OF-THE-MONTH by Dorothy and George Raeihle

ANNUAL ELECTIONS; BUSINESS MEETING

The NEW YORK SHELL CLUB begins its 17th year, which promises to be one of its most active seasons. We are proud of the willing cooperation of our members and wish to take this opportunity to wish you all a most Happy New Year!

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*OUR GUEST SPEAKER, Mr. Barry Wilson, is Curator of Mollusks of the Perth Museum in West Australia. He is spending a year in this country, working with Dr. Clench at Harvard University. We greatly appreciate his making the trip from Cambridge to visit us.

ANNUAL ELECTIONS: The nominating committee (made up of past presidents) is considering a slate for your approval. Anyone wishing to submit a nomination should send it to the committee's chairman, Mr. M. K. Jacobson, 455 Beach 139th Street, Rockaway Beach, New York 11694.

PUBLICATIONS:

NOVITATES No. 2202, Dec. 15, 1964
Results of the Puritan-American Museum of Natural History Expedition to Western Mexico
20. THE RECENT MOLLUSKS: GASTROPODA: HARPIDAE, VASIDAE, AND VOLUTIDAE

by William K. Emerson

Students will appreciate this paper which studies the above named families as collected from west Mexican waters. Paleontological records are given and a new Pliocene species, Vasum (Vasum) pufferi, is described.

16 pages of illustrated text plus 6½ pages of bibliography. Order by number and title as above from the Library of the American Museum of Natural History, Central Park West at 79th St., New York, N. Y. 10024. Price about 40¢.

EXPLORATIONS ON THE WEST COAST OF FLORIDA AND IN THE OKEECHOBEE WILDERNESS

by Angelo Heilprin

The Paleontological Research Institution takes pleasure in announcing its republication of EXPLORATIONS ON THE WEST COAST OF FLORIDA AND IN THE OKEECHOBEE WILDERNESS by Angelo Heilprin. (Printed originally in the "Transactions of the Wagner Free Institute of Science", 1887) 134 pages, 19 plates.

This is an important book for fossil collectors and paleontologists interested in the late Cenozoic fossils of Florida. It contains the original descriptions and illustrations of the famous fossil shells found along the Caloosahatchee River as well as notes on the early collecting sites in southern Florida.

The price is $4.00 postpaid from the Paleontological Research Institution, 109 Dearborn Place, Ithaca, New York 14850.

SOME NEOGENE MOLLUSCA FROM FLORIDA AND THE CAROLINAS

by Axel A. Olsson and Richard E. Petit

Bulletins of American Paleontology, v. 47, No. 217; 69 pages, 8 plates, 1964. Contains descriptions of late Cenozoic geologic formations of southern Florida with eight plates of beautiful illustrations of fossils from south Florida and the Carolinas. These include new formational names and new species of mollusks.

The price is $2.35 postpaid. Order Bulletin of American Paleontology No. 217 from the Paleontological Research Institution, 109 Dearborn Pl., Ithaca, New York 14850.

TIDE TABLES

Field workers will want the 1965 TIDE TABLES FOR THE EAST COAST OF NORTH AND SOUTH AMERICA. Price $2.00 from Coast and Geodetic Survey, Federal Office Building, 90 Church Street, New York, N. Y. 10007. Also locally from the Hammond Map Store, 1 E. 43rd Street, New York City.

THE COWRY

No. 7 of Vol. 1 of this English publication devoted entirely to Cypraea is now available. This issue of THE COWRY is dated November 1st, 1964, and contains an illustrated article by Bill Old "Status of Cypraea arabica niger"; another paper "Cypraea spadicea" by J. Donahue; articles by F. A. and M. Schilder, Walter O. Cernohorsky, D. H. Kennelly, Mrs. P. Rowe and Mrs. I. Pert.

The price is $.85 per copy. See Bill Old or write to the American representative: C. M. Sgt. E. L. Fobes, U.S.A.F., P. O. Box 373, Hamilton AFB, California.

UNDERWATER RECREATION

A manual for skin and SCUBA divers, UNDERWATER RECREATION is a 72 page, illustrated book. Contains bibliography of recommended reading. It is obtainable from the Department of Parks and Recreation, County of Los Angeles, Los Angeles, California.

A CHECK LIST OF THE MARINE MOLLUSKS OF TEXAS, by T. E. Pulley, Biology Department, University of Houston. Originally published in the "Texas Journal of Science" and now out of print. The Gulf Coast Shell Club has reprinted this paper in a special issue of "Between the Tides" (their club publication) for December, 1964. We are happy to receive this publication and add it to our Club Library.

THE CONSERVATIONIST is an official publication of the New York State Conservation Department, State Campus, Albany, New York. The issue of Dec.-Jan. 1964-1965 included the article quoted here:

RELAXED CLAMS

A series of experiments conducted at the Milford, Conn., biological laboratory, with propylene phenoxetol, a colorless, oily, nontoxic liquid, is reported effective as an anesthetic for shellfish. A drug, which would permit experimental manipulation of completely relaxed, but living mollusks, obviously would be of great value for anatomical and physiological investigations.

Active hard clams exposed to varying concentrations of propylene phenoxetol in sea water showed drug levels of 0.5 to 1 percent, caused 20 per cent of the clams to become completely relaxed. Shortly after being returned to normal sea water, they showed complete recovery.

Clams, oysters and mussels also were anesthetized by hypodermic injection into the mantle cavity, but mortality was high after this treatment.

IN SYMPATHY

Word has been received from St. Croix of the death of Mrs. Gordon Nowell-Usticke. Our deepest sympathy is with Mr. Usticke in his bereavement.

YOCHIRO HIRASE, 1859 - 1925, JAPAN'S FIRST CONCHOLOGIST

by Anthony D'Attilio

Yochiro Hirase was born at Fukura, Awaji Province, Japan, in September of 1859. He came from a background of farmers and was himself so trained. However in 1888, for reasons not known, Hirase with his family moved to Kyoto, the ancient city and cultural center of Japan. At this time he made the acquaintance of some students of the natural sciences, an event which led to the awakening of an interest in zoology. From this start he very soon found his main preoccupation in the study of mollusks -- a pursuit he was to maintain wholeheartedly for the remainder of his life.

In 1854 there had occurred the forceful entry of Admiral Perry into Japan and the quick opening of her gates to world commerce. The varied scholars, educators and other teachers that followed from the outside world soon awakened Japan to all aspects of Western knowledge and learning.

Hirase came into contact with and was much influenced by Professor Marshall Gaines and Dr. John Gulick, who were prominent among the Western educators in Japan. As a consequence, Hirase was very quick to perceive the complete lack of scientific knowledge in the field of Japanese mollusks and decided at once to enlarge, to the best of his ability, his own knowledge and that of Japan. With the small resources at his command he published a guide for shell collectors and hopefully distributed this wherever he believed it might bear fruit. When this didn't produce immediate and large scale results he conceived the idea of employing collectors and dispatching them throughout Japan to hunt for terrestrial shells. Further enlarging his activities to marine collecting, he eventually had more than fifty field collectors employed in searching the seacoasts of Japan and adjacent islands. In addition, he succeeded in awakening the interest of deep sea fishermen and extended his contacts as far as the Liu Chiu Islands, Formosa and Korea.

In 1907 Hirase had advanced far enough in his knowledge of shells to begin publication of the "Conchological Magazine" which was issued periodically for several years. His enthusiasm for shells, however, was too far ahead of that of his countrymen and the sales of his magazine were so poor that a financial crisis forced him to suspend publication. During this period also he came into contact with Dr. H. A. Pilsbry of the Academy of Natural Sciences of Philadelphia and eventually came to rely much upon Dr. Pilsbry for this famous malacologist's knowledge. Through this scientific cooperation there flowed into the Academy the many new species that were discovered through the pioneer efforts of Hirase.

During the year 1913 the first museum in the world devoted entirely to mollusks was opened to the public view in Japan. This was the Hirase Conchological Museum. The following year, in 1914, he began the publication of what he hoped would be a series of volumes to be known as "Illustrations of a Thousand Shells". Financial difficulties beset this venture and only four volumes were published, each of which contained one hundred illustrations. These illustrations are among the most unusual in shell literature in that Hirase had recourse to wood block printing in color. These exquisite books unfold in the ancient Japanese manner. The entire project was meant to be a tribute to both the beautiful shells of Japan and the wonder of her great graphic artists who achieved their finest expression with the technique of wood engraving.

Yochiro Hirase died May 25th, 1925, and an obituary notice written by

his son Shintaro appeared in the October issue of the "Nautilus". A testimony to the esteem in which his countrymen as well as his friends elsewhere in the world held him is to be seen in the large number of the rarest shells which were named for him. A few of those in the best known showy genera are here cited:

Pleurotomaria hirasei
Cypraea hirasei
Voluta hirasei
Conus hirasei
Murex hirasei

THE QUESTION BOX:

Question: "In AMERICAN SEASHELLS", Asaphis deflorata is listed in the family Sanguinolariidae. In Australia it is in the family Gariidae. Aren't the families the same universally?"

Answer: Yes, the family names should be the same universally. Unfortunately, it depends on whose classification one follows. While AMERICAN SEASHELLS places the species of the genera Gari, Asaphis and Sanguinolaria in the family Sanguinolariidae, Kuroda and Habe's CHECKLIST OF MARINE MOLLUSCA OF JAPAN places them in the family Asaphidae. They consider Gariidae (and Psammobiidae) as synonyms, and do not use the family name Sanguinolariidae. Confusing? The classification used in the TREATISE ON INVERTEBRATE PALEONTOLOGY (in manuscript) places Asaphis in the family Garidae (with single "i"), while Sanguinolariinae is a subfamily.

Question: "Does the Argonaut make only one cradle in her life time? What is her life span?"

Answer: The Argonaut cradle or "shell" can be replaced if necessary. It is not attached to the body of the Argonaut, and captive specimens * have been known to "park their perambulator" and come back for it later. The life span of the Argonaut is unknown.

W. E. Old, "Answer Man"

*For an observation of living Argonauta, see NYSC NOTES No. 79. - Ed.

PHILLIPINE SHELLS

Our member Mrs. Sylvia Warshaw has a contact with a Phillipine shell dealer who would like to sell shells to Club members at wholesale price plus postage. The dealer wishes to send bulk orders, so if you are interested in the offer and wish to place an order for shells indigenous to the Phillipine Islands and/or Japan, you are invited to get in touch with Mrs. Warshaw for details and send her your list either typed or carefully written. Address: Mrs. Sylvia Warshaw, 3560 Rochambeau Ave., Bronx, New York 10467.

GEM DEPARTMENT:

Bill Old found the following note while sorting Littorina from a collection recently received by the museum. The collector had written: "It's definitely not angulifera, irrorata, saxatilis, littorea, obtusata. Which leaves ziczac which it isn't." (Ah, we know that feeling! -- Ed.)

THE PINK SANDS OF ELEUTHERA

by Dorothy Jensen

The native name of Eleuthera was "Cigatoo". It was changed to its present name (which comes from the Greek word "Eleutheros", meaning "free") by some early settlers for whom it meant religious freedom. To my husband and me it also means freedom, freedom from our work and year round way of life. So far we've made three trips to this island in the Bahamas, in the summers of 1960, 1962 and 1964.

Eleuthera is situated about 200 miles east of Florida, and is a short thirty minute air trip from Nassau. The island is approximately 100 miles long with an average width of 2 miles and an elevation of 150 feet. The town of Governours Harbor is located on the west coast about mid-island, while the beautiful resort hotel, "French Leave", is only 2 miles away on the east coast. We have always stayed at "French Leave" where the food is good, the people friendly and informal and the beautiful beach is actually pink due to coral reefs offshore. The town of Governors Harbor consists of a general store and gas station, bank, movie, post office, police station and a few local bars. Cars are available and we have always rented a small car, which is a "must" for traveling on the side roads which are very narrow with rough going. There is one main road running through the center of the island. This road is mostly well paved, permitting speeds of between 40 and 50 miles an hour. All collecting areas shown on the map (next page) can be reached by car.

Sweetings Pond is one of our favorite collecting areas -- not for rare shells, but for the peace, quiet and beauty of the area. It's an inland salt water lake with crystal clear water and a fine sandy bottom. The lake is about 3 miles long, 1/2 to 3/4 of a mile wide and is shallow along the shore line gently sloping to a depth of about 60 to 70 feet at the center. The shells collected in this area show vivid coloring and differences in shell that make us wonder if they could be due to a variation in the mineral content of the water. On our next trip we plan to take samples and have an analysis made of this water. We found Laevicardium laevigatum there that were maroon and bright golden yellow. Also a Hyalina species that is smaller than our Florida one, much darker orange in color and with an iridescence -- but it may only be Hyalina avena. These and many other species were found in water less than three feet deep. Sweetings Pond is ideal for shallow water snorkling -- no need to keep on the lookout for sharks or barracuda. And if you get tired of wet collecting, the area around the pond is ideal for land snails.

Mitchell's Water Sports Center is located about 2 miles north of Governours Harbor. David Mitchell has a complete line of skin diving equipment for rent and also has the only air compressor on the island for filling SCUBA tanks. Also for rent are several outboard motor boats called "Boston Whalers". These boats are unsinkable, can carry four persons plus all the equipment you may need. Mr. Mitchell has several kitchen apartments for rent that are quite reasonable out of season. (The season runs from November until May.) We would recommend that anyone going to Eleuthera contact Mr. Mitchell by writing to him at Governours Harbor.

We rented one of the "Boston Whalers" from Mitchell's for some shallow water dredging in Governours Harbor. Our first haul came up with a beautiful Xenophera conchyliophora and several Murex florifer. Almost

every haul had at least three to five Strombus costatus. This seems to be one of the most common shells on the Caribbean side of the island.

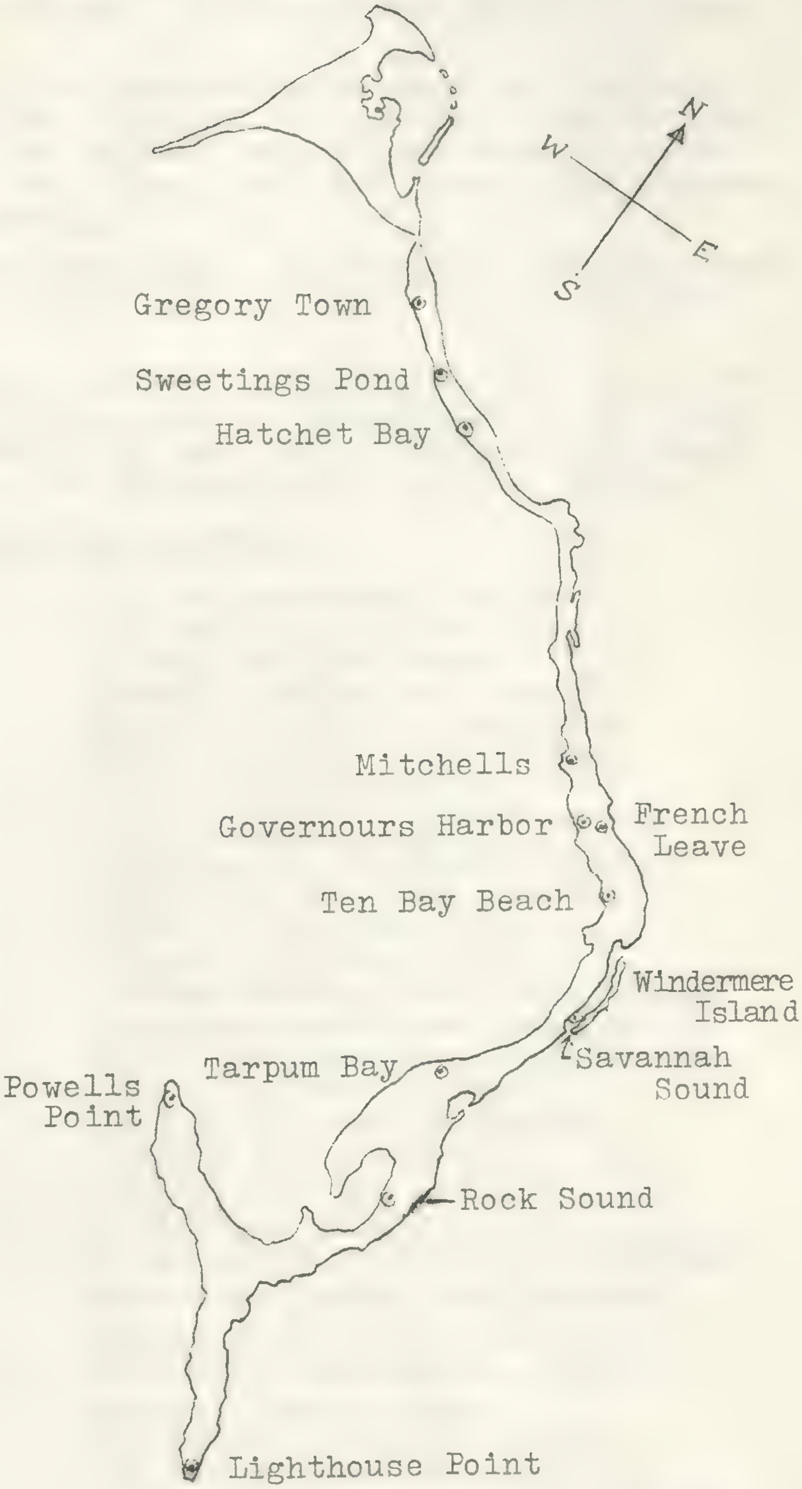
At Savannah Sound, between the southern end of Windemere Island and Eleuthera, is a large area of grass and sand flats. At low tide this section provides good shelling, too.

Ten Bay Beach is another of the beautiful beaches of the island. The land surrounding this beach is being sectioned off and made into homesites, many of them already sold. This beach, so far uncluttered with any signs of humans, may soon be "Improved" (?).

Going south along the Caribbean side of the island we stopped at several places just before the town of Tarpum Bay. Here the road runs parallel to the shoreline and you have your pick of many fine shelling areas. In many places the shoreline drops off into five to eight feet of sparkling clear water. You step off the coral rock formations into a water wonderland of small reef fish, sandy clear bottom and excellent conditions for shelling or just plain underwater sightseeing. The rocky coral shore has many excellent tide pools for collecting the usual rock dwellers: Chitons, Limpets, Mytilus, Nerites and the most common Cittarium pica.

Further south we tried collecting at Powells Point. We found this place on our last day and unfortunately it was high tide. We were told that this was the area where commercial boats come to collect thousands of Strombus gigas. Just off shore there is a rapid flow of water, perfect conditions for Strombus. The beaches were covered with dead Strombus shells, each with a slit cut in it showing that the natives had taken the animal for use as food.

At the southernmost tip of the



island is Lighthouse Point. A long sandy beach rapidly sloping out to sea with coral and reef formations just off shore and another reef out about 100 feet. At one end of the beach is the foundation of an old dock; just at the foot of this dock at low tide the water is quite shallow with sections of reef almost exposed. We have never failed to find Cassis in this area.

All in all we have found Eleuthera our perfect island for shelling and just plain relaxing. The natives are friendly and are more than willing to be helpful whenever they can. During July and August weather conditions are fine, the temperature seldon going over 85°; occasional showers are brief and at times a cooling break.

Anyone interested in more detailed information about these shelling areas may write to us in care of the New York Shell Club and we will be more than pleased to answer questions.

Below is a list of the marine shells we have collected at Eleuthera. (We are still in the process of identifying some of the smaller ones.) Karl Jacobson has written an article about the land snails we collected there for him which is expected to be in the January issue of "The Nautilus".

MARINE SHELLS OF ELEUTHERA

Acanthopleura granulata Gmelin
Acmaea cubensis Reeve
Acmaea leucopleura Gmelin
Acmaea pustulata Helbling
Americardia guppyi Thiele
Americardia media Linné
Anachis pulchella Sowerby
Arca imbricata Bruguière
Arca zebra Swainson
Arcopsis adamsi Dall
Asaphis deflorata Linné
Astraea phoebia Röding
Astraea tecta Solander
Atrina rigida Solander
Bailya parva Adams
Balcis intermedia Cantraine
Barbatia cancellaria Lamarck
Batillaria minima Gmelin
Botula fusca Gmelin
Brachidontes citrinus Röding
Brachidontes exustus Linné
Bulla striata Bruguière
Caecum nebulosum Rehder
Cantharus tinctus Conrad
Cassis flammea Linné
Cassis tuberosa Linné
Cerithium atratum Born
Cerithium eburneus Bruguière
Cerithium litteratum Born
Cerithium muscarum Say
Cerithium variabile Adams
Chama macerophylla Gmelin
Charonia variegata Lamarck
Chione cancellata Linné
Chiton marmoratus Gmelin
Chiton tuberculatus Linné
Cittarium pica Linné
Codakia orbicularis Linné
Codakia orbiculata Montague
Columbella mercatoria Linné
Conus floridanus Gabb
Coralliophila caribaea Abbott
Crassispira fuscescens Reeve
Crepidula fornicata Linné
Cymatium femorale Linné
Cyphoma gibbosum Linné
Cypraea spurca acicularis Gmelin
Dentalium antillarum Orbigny
Dentalium semistriolatum Guilding
Diodora arcuata Sowerby
Diodora cayenensis Lamarck
Diodora dysoni Reeve
Diodora listeri Orbigny
Diplodonta punctata Say
Divaricella quadrisulcata Orbigny
Epitonium novangliae Couthouy
Fasciolaria tulipa Linné
Fissurella barbadensis Gmelin
Gouldia cerina Adams
Glycymeris decussata Linné
Glycymeris pectinata Gmelin
Gregariella coralliophaga Gmelin
Haminoea petiti Orbigny
Heterodonax bimaculatus Linné
Hyalina avena Kiener
Hyalina avenacea Deshayes

(continued next page)

Ischnochiton limaciformis Sowerby
Laevicardium laevigatum Linné
Latirus brevicaudatus Reeve
Leucozonia nassa Gmelin
Leucozonia ocellata Gmelin
Lima pellucida Adams
Lima scabra form tenera Sowerby
Lithophaga nigra Orbigny
Littorina angulifera Lamarck
Littorina mespillum Mühlfeld
Littorina ziczac Gmelin
Lucina pensylvanica Linné
Lyropecten antillarum Recluz

Melampus coffeus Linné
Modulus modulus Linné
Morum oniscus Linné
Murex florifer Reeve
Murex pomum Gmelin
Murex recurvirostris rubidis Baker
Musculus lateralis Say

Nassarius albus Say
Natica livida Pfeiffer
Natica canrena Linné
Neosimnia acicularis Lamarck
Nerita peloranta Linné
Nerita tessellata Gmelin
Nerita versicolor Gmelin
Nitidella nitida Lamarck
Nodilittorina tuberculata Menke

Oliva reticularis Lamarck
Olivella sp.

Pinctada radiata Leach
Pinna carnea Gmelin
Planaxis nucleus Bruguière
Polinices lacteus Guilding
Prunum apicinum Menke
Prunum guttatum Dillwyn
Pseudochama radians Lamarck
Pseudoneptunea multangula Philippi
Pseudostomatella coccinea Adams
Pteria colymbus Röding
Puperita pupa Lamarck
Purpura patula Lamarck
Pusia gemmata Sowerby
Pyramidella dolabrata Linné

Rissoina decussata Montagu
Rupellaria typica Jonas

Seila adamsi Lea
Siphonaria alternata Say
Solemya occidentalis Deshayes
Spirula spirula Linné
Strombus costatus Gmelin
Strombus gigas Linné

Tectarius muricatus Linné
Tegula fasciata Born
Tellina consobrina Orbigny
Tellina listeri Röding
Tellina radiata Linné
Terebra hastata Gmelin
Thais deltoidea Lamarck
Thais rustica Lamarck
Tonna maculosa Dillwyn
Tricola (2 species)
Trivia quadripunctata Gray
Truncatella sp.

Vermicularia spirata Philippi

Xancus angulatus Solander
Xenophora conchyliophora Born

Zebina browniana Orbigny

NEW SHELL CLUBS

We have the announcement: "On November 13, 1964, on Kwajalein Island, Kwajalein Atoll, in the Marshall Islands, a meeting was held and the Kwajalein Malacological Society was formed. We hope that someday we may be able to contribute to the world's knowledge about Pacific shells, because we certainly are in an ideal situation to further the cause of malacology. . . " We of the New York Shell Club wish them all success and suggest that their "someday" may be very soon. Our good wishes also to the newly organized clubs in San Diego and Rochester.

KWAJALEIN MALACOLOGICAL SOCIETY
Mrs. Eleanor S. Landry, Chairman
Box 997
A.P.O. San Francisco, Cal. 96555

ROCHESTER SHELL AND SHORE CLUB
c/o Mrs. Berneice Plummer
47 Tulane Parkway
Rochester, New York 14623

SAN DIEGO SHELL CLUB
c/o Comm. Norman P. Currin
5431 Via Alcazar
Clairemont, California

JANUARY, 1965, SUPPLEMENT TO ROSTER OF NEW YORK SHELL CLUB

We welcome these new members, and bring you up to date on address changes received since our June, 1964, supplement:

BERGMANN, Mr. John H.	104 Vernon Drive, Scarsdale, New York
BRAUN, Mr. & Mrs. Raymond J.	240 E. 76th St., Apt. 7-E, New York, N.Y. 10021
CEREZO, Mr. Frank	218 E. 104th St., New York, N.Y. 10029
EDGELL, Mrs. Stephanie	1 Beekman Place, New York, N. Y. 10022
FISHER, Mr. & Mrs. William	63-59 Booth St., Rego Park, N. Y. 11374
GALLAGHER, Mrs. Frank	4970 Grandview Drive, Peoria Heights, Illinois
GREER, Mr. DuPuy	140 E. 46th St., New York, N. Y. 10017
HASSETT, E. C.	224 E. 74th St., New York, N. Y. 10021
JESSELSON, Mr. Robert	26 Darewood Lane, Valley Stream, New York
LANDFEAR, Mr. Michael, LANDFEAR, Mr. Scott	74 Raymond Ave., Nutley, New Jersey
LEWIS, Mr. John R.	4915 Northcott Ave., Downers Grove, Illinois
MANES, Mrs. Sidney	Knollwood Road, Fayetteville, N. Y. 13066
MASKALERIS, Miss Dorothy	310 E. 51st St., New York, N. Y. 10022
MESSING, Mr. Charles	29 Garwood Road, Fairlawn, New Jersey 07410
MIGLIACCIO, Mr. and Mrs. Salvatore H., MIGLIACCIO, Miss, and MIGLIACCIO, Christopher	306 Fisher Ave., White Plains, N. Y. 10601
MURPHY, W. S.	116 E. 83rd St., New York, N. Y. 10028
PASCAL, Miss Rosemary	75-05 113th St., Forest Hills, N. Y. 11375
PROETZ, Mrs. John B.	P. O. Box 334, Boynton Beach, Florida 33435
RENMAN, Mrs. Ronald E.	40 Stony Hollow Road, Centerport, L. I., N. Y.
ROBBINS, Mrs. Kit	Hotel Blackstone, 50 E. 58th St., New York, N. Y. 10022
SCARPETTI, Mr. Al	283 W. 11th St., Apt. 3-E, New York, N.Y. 10014
SCHOEN, Mr. Donald R.	11 Hamilton Ave., Bronxville, New York
SIMARD, Mr. Gaetan	440 Richard St., Joliette P. O., Canada
STOUT, Mrs. Gardner D.	150 E. 73rd St., New York, N. Y. 10021
SWEATT, Mr. Wayne L.	12-B Townley Road, Radburn, New Jersey

CHANGES IN ADDRESS:

BENDERSKY, Mr. Israel	111-45 76th Ave., Forest Hills, N. Y. 11375
BENNETT, Mr. & Mrs. C. G. (Jo & Rusty)	101 Eleventh Street-Ocean, Marathon, Florida 33050
BROWARD SHELL CLUB	c/o Mrs. Jean Redding, 517 S. W. 9th Street, Fort Lauderdale, Florida
COOMANS, Dr. H. E.	Zoologish Museum, Plantage Middenlaan 53, Amsterdam, Netherlands
GOLDEN, Dr. Joseph	2669 Ridgemore Rd., N. W., Atlanta, Ga. 30318
GONZALES, Dr. Elsa	2343 Southwest Cedar, Portland, Oregon
LAWSON, Mrs. Selma R.	P. O. Box 6882, Pass-A-Grille Beach, Florida 33741
LENNARD, Mr. Paul	39 Gramercy Park, New York, New York
LEVITEN, Mr. Paul	123 Zamora, Apt. 203, Coral Gables, Fla. 33134
MERRILL, Mr. Arthur S.	128 South Harrison St., Easton, Maryland
OGUSH, Mr. Eugene	175-21 88th Ave., Jamaica, N. Y. 11432
TEXAS SHELL NEWS	(San Antonio Shell Club) Mrs. Laura Gilbert, Ed. 451 Hammond Avenue, San Antonio, Texas 78210
WISOFF, Mrs. Julius	341 Filmore St., Hollywood, Florida 33020

NEW YORK SHELL CLUB NOTES No. 109 Feb. 1965

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the EDITOR. NOTIFY CORRES. SEC'Y of any change in address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MARCH 14th, 1965, at 2:00 P. M.

PROGRAM: DISTRIBUTION OF LITTORAL MOLLUSCAN FAUNAS OF BAJA CALIFORNIA, MEXICO. By Dr. William K. Emerson, Chairman, Dept. of Living Invertebrates, AMNH

SHELLS OF ZANZIBAR. By Anthony D'Attilio

ANNUAL ELECTIONS, FEBRUARY 14th:

The proposed slate of officers as presented by the chairman of the nominating committee, Mr. M. K. Jacobson, was unanimously voted in by the attending members.

The Club gave a large "Thank you" to retiring President William E. Old and Recording Secretary Marian M. Schroth. Mr. Old always gave wholeheartedly of his knowledge and experience for the benefit of the Club. The gavel was turned over to incoming President George Raeihle who has as his able staff Vice President Mansfield Fuldner and Milton (Mike) Werner as Recording Secretary in addition to the other officers, already incumbent, who were named and thanked for their past and continuing services.

An active member of the New York Shell Club since 1956, Mr. Raeihle's lectures illustrated with his wonderful close-up color slides of shells have raised to a new level the presentations at many meetings. Mr. Raeihle's interest and enthusiasm is sure to make this a banner year for our club.

In addition to the elected officers, members were more than pleased to know that Editor Dorothy Raeihle will continue at the helm of our publication.

n.j.

SECOND EUROPEAN MALACOLOGICAL CONGRESS

The Unitas Malacologica Europaea will hold its second European Malacological Congress in Copenhagen (Denmark) from August 10 in the morning until August 11, 1965, in the evening. Details for the program of the Congress, to be held at the Zoological Institut and Museum of the University, may be obtained from Dr. G. Høpner Petersen, c/o Zoologisk Museum, 5. Afdeling Universitetsparken 15, Copenhagen, Denmark. All malacologists are invited to attend.

From THE VELIGER of January 1, 1965
(Vol. 7, No. 3)

PUBLICATIONS:

INVERTEBRATE MEGAFOSSILS OF THE BELVEDERE EXPEDITION TO THE GULF OF CALIFORNIA

By William K. Emerson and Leo George Hertlein

Transactions of the San Diego Society of Natural History, Volume 13, No. 17, pp. 333-368, 6 plates. $1.15.

NYSC members will remember the documentary color film "Report on the Belvedere Expedition to the Gulf of California" shown and narrated by Dr. Emerson at our meeting in April, 1963. They will also recall the scene wherein a fossil marine specimen was carefully chiseled out of the side of a cliff. This was but a sample, as over 150 species of molluscan fossils were collected on that expedition. We quote from the introduction:

"This paper records the fossil invertebrates, mostly mollusks, echinoids and corals, collected by members of the scientific party during the course of the expedition. Fossils ranging in age from early Pliocene to late Pleistocene were obtained from localities on ten islands in the Gulf of California and at El Púlpito on the peninsula of Baja California....... A report on the terrestrial mollusks obtained by the expedition has been published (Emerson and Jacobson, 1964)."

JOURNAL OF THE MALACOLOGICAL SOCIETY OF AUSTRALIA

No. 8, Published 15th December, 1964

These excellent annual journals published by the Malacological Society of Australia are obtainable from the Hon. Editor, The Australian Museum, College Street, Sydney, N. S. W., Australia. Price $2.25 each; special rates for complete sets. This latest number includes papers on the living species of Eucrassatella, Eolidacea, Megalacron and Rhytidoconcha, observations on Mytilus edulis planulatus and Umbraculum sinicum, identifies a venomous octopus and carries the description of a new Murex.

HELEN SOKOLOFF

It grieves us to report the passing on February 10th of Helen Sokoloff, wife of Stanley Sokoloff. Our deepest sympathy is extended to the bereaved family.

ROSE LANDAU

It is with sadness that we announce the passing on February 11th of Rose Landau, aged 84. We extend our sympathy to her sister and to her nephew, Henry Gordon.

DR. BARRY WILSON GUEST SPEAKER

Using a map and color slides, Dr. Barry Wilson, Curator of Mollusks of the Perth Museum, gave us a quick "tour" of the coast of West Australia, touching on several areas where the living mollusks were enough to instigate a mass migration of NYSC members: He showed us the fascinating contents of a deepwater dredge as it was brought up off Perth, the sandstone reefs at Port Gregory where there is a mixture of coral and cold water fauna, a view of the Shark Bay sand flats where *Megalotractus* and *Melo* are so numerous as to be common, and another reef where oysters and *Haliotis* were so thick it seemed that one would have to pick a path through them. In the mud-sand flats of mangrove areas the incredibly rich fauna included Volutes; on limestone reefs 27 species of *Cypraea* were collected in one morning; in the Kimberly area the several *Murex* species included *bednalli*.

These of course were selected areas, as the hundreds of miles of West Australian coastline extend from the southwest, where the climate is rather like that of California, to the northwestern section where the tropical and desert fauna is characteristic of the tropical Indo-Pacific. This northwestern section is in general inhospitable desert; field workers must carry all their food, fuel and vital fresh water. (There *are* isolated water holes inland -- Dr. Wilson told of finding in them fresh water mollusks that were relics of prehistoric fauna from tropical Indo-Pacific areas.) With such traveling and living conditions it is impractical to carry SCUBA equipment on small expeditions. Dr. Wilson showed a photograph of a diver using "Hookah equipment", an ingenious underwater breathing device needing only a small motor and pump to supply air to the diver through a long plastic tube -- the whole kit conveniently compact and economical in the use of fuel. He described the difficulties of underwater photography (while showing us magnificent examples) because of the twice-a-day, 26' tide, the water being sufficiently clear for photography only during the five to ten minutes of slack.

We mention here only a few of the molluscan pictures: The live *Cypraea reevi* with white foot, black tentacles, and its cream to tannish mantle covered with rather short papillae. Then two other Cypraea, unusual in that the mantle was bare of papillae: *Cypraea venusta* with its foot and smooth mantle flesh-peach in color and *Cypraea friendi* with its smooth, all black mantle. *Voluta amoria grayi* was shown from two areas: the living mollusk from the southern area with beautifully striped light brown and white animal, the shell banded with a darker brown; the *V. a. grayi* from the northern area had a purplish tint to the light brown shell and was *not* banded.

Dr. Wilson is spending a year at Cambridge; we certainly appreciate his trip to New York to speak before our club on February 14th and we were delighted to entertain Mrs. Wilson also.

DR. BERNARD TURSCH VISITS NYSC

Also most welcome at our February meeting was our surprise guest, Dr. Bernard Tursch of Belgium, who had arrived in New York only that morning. Dr. Tursch is a biologist whose work is connected with toxins of marine fauna and has been working in Brazil these past two years.

Sketching a rough map, Dr. Tursch remarked that there were only four

shell collectors to the over 7,000 kilometers of Brazilian coastline. He has collected 800 molluscan species in the two years and estimates that, considering the large unworked areas, as many as 2,500 species may eventually be found. With a tide of only two feet he found diving, and deepwater dredging to 80 meters, much more profitable than intertidal collecting. Traps were used also, but without spectacular success. (At this point he digressed to ask if anyone could give him a good recipe for deepwater crabs.)

Dr. Tursch indicated the area off the Amazon River Delta and explained that shelling was poor here as the river's fresh water discharge was evident 800 kilometers out to sea, naturally affecting the fauna. Murex argo were found in the vicinity of Natal; at Bahia he found several endemic species including a Cyphoma which is twin to one recorded from Lake Worth! He added that some Caribbean species are found all the way down to Santa Catarina. Another interesting note: a Voluta species collected from Brazil's southern waters was rotund while the same species taken from Brazil's northern waters was elongate.

His closing remark included a bit of local color and advice. Natives practicing voodoo use a lot of Cypraea moneta, so a collector should not become excited at finding on the Brazilian coast an occasional shell of this African species.

SHELLING IN THE SEA OF CORTEZ

By Dorothy Germer

Last summer a dream of ours came true -- we crossed this great land of ours from the green Atlantic to the broad blue Pacific. Our destination: San Diego and a visit with our friends Ruth and Ben Purdy.

While in San Diego we planned a weekend trip into Baja California to the little fishing village of San Felipe. Ruth, Ben, Kay Webb and our family left San Diego about 10 A.M. that Friday morning and headed south on Route 101 to Tijuana, Mexico. Tijuana is a typical border town -- crowded, and everywhere there were hucksters. One thing we got a big laugh out of was a sign: "Marriages and Divorces in 24 hours".

We then took highway No. 2. The mountain scenery is spectacular; huge boulders were laying all over as if a giant had thrown them there. How they stayed and did not roll down we'll never know. Vegetation was scarce -- dry grasses and a few cactus plants. The road is very good. (There was only one small detour and that was near San Felipe.)

After climbing the mountains we descended into the Mexicali Valley. Here were orchards and fields of produce, the area irrigated by the waters of the Colorado River. Reaching the town of Mexicali, we filled our gas tanks and headed south on Route No. 5 to San Felipe. The day was overcast; we were grateful for this as the Mexicali Desert is hot. This stretch of desert had high sand dunes and dry salt flats.

The great moment had come -- our first glimpse of the "Sea of Cortez" (officially known as the Gulf of California). What a thrill to see its deep turquoise-blue waters and, a most amazing sight, a huge, high, white mountain in the middle of the Gulf. It looked like a snow-white iceburg! We were told that this island was the nesting place for sea birds.

The air became comfortably cooler as we neared San Felipe and on arrival at the El Cortez Motel we quickly changed into swim suits and took a

cooling dip in the warm waters of the Gulf. It was high tide and we just swam around -- the shells could wait until tomorrow. The waters of the Gulf are very salty due to the small flow from the Colorado River; the fishermen hope this will not hurt the fishing industry there.

One bit of advice: Take along enough drinking water and food. There is a small cantina here if you like Mexican food, but we like ours "Yankee style" so cooked our meals on a gasoline stove on the remada of the motel and ate overlooking the Gulf.

That night we retired early, the boys sleeping outside on the porch. It was cool there and we had no problem with either mosquitoes or flies. Early next morning we headed north of San Felipe to the shelling area. Here is a huge black mountain that appears to be all black lava rocks, with a rocky beach at the base of the mountain.

The area was a shellers' paradise and right then and there we decided on variety, not quantity. Cantharus macrospira was all over; under the rocks were limpets and chitons galore. Baby octopus also were all over this area -- we found them fast and slippery, - and can they bite! Muricanthus nigritis up to 3" in size were plentiful but we found none larger. Kay found one specimen of Hexaplex erythrostomus. Cerithium, Tegula rugosa, Acanthina angelica shells were all over the area, but try to find one with its original owner -- they were all occupied by bright red hermit crabs!

The Mexicans were collecting Cardita affinis (they use them for fish bait); the animal is bright orange-red in color and has a strong fishy odor. They were also collecting Protothaca grata, eating them and throwing away the shells. To this armchair collector this presented the ideal setup for collecting Protothaca.

Ben was busy collecting baby octopus; Ruth, Kay, the boys and I were busy collecting shells. We were looking for Fusinus fredbakeri which is supposed to be found in this area, but found none. Our son Charles has a way of finding shells, even though rocks are his hobby. He was watching a Mexican digging clams when he saw these oddly shaped bivalves. Showing them to Ruth and Kay he found out they were brachiopods and quite rare. We are not sure of the species but think them to be Glоditea palmeri.

Once Ruth had a huge pholad by the neck, but as fast as Ben dug the tide filled in the hole so Mr. Pholad lived on. With the turning of the tide small lumps began to appear on the beach and then we really had to work! Small lumps contained Olivella dama, larger ones Oliva incrassata. One big lump was a Cassis centiquadrata. Small Conus perplexus started to pop out, but now the tide was really starting in so we headed back to shore.

The next morning found us in a different area, one with muddy beaches and tide pools. Here we found Nassarius species and Natica chemnitzi, but they were not plentiful. The Mexicans tried to be helpful by telling us about another area good for shelling. But all good things must come to an end and it was time to return to San Diego. . .

We very reluctantly said "Adios" to the Sea of Cortez. We shall never forget San Felipe, its wonderful beaches, and the kind Mexicans we met there. Here indeed is a place to go which is free from the mad rush of our modern world. Someday we hope to return and stay a while longer.

We collected 71 species on our brief visit to San Felipe. The listing follows:

SHELLS WE FOUND AT SAN FELIPE

By Dorothy Germer

ROCKY BEACH AREA, BLACK LAVA ROCKS:

Gastropods:

Acanthina angelica I. Oldroyd
Acanthina tuberculata Sowerby
Calliostoma bonita Strong, Hanna & Hertlein
Cancellaria urceolata Hinds
Cantharus capitaneus Berry
Cantharus macrospira Berry
Cantharus pallidus Reeve
Cantharus sp.
Cerithidea albonodosa Gould
Cerithium menkei Carpenter
Chiton virgulatus Sowerby
Chitons, 4 unidentified species
Clavus asaedai Hertlein & Strong
Conus gradatus (dead specimens)
Cosmioconcha sp. (?)
Crassispira nymphia Pilsbry & Lowe
Crassispira sp. (?)
Crepidula excavata Broderip
Crepidula rostrata C. B. Adams

Crucibulum scutellatum Wood
Diodora inaequalis Sowerby
Diodora saturnalis Carpenter
Hexaplex erythrostomus Swainson
Morula ferruginosa Reeve
Muricanthus nigritis Philippi
Nerita funiculata Menke
Nerita scabricosta Lamarck
Nomeopelta mesoleuca Menke
Octopus sp.
Strombina hirundc Gaskoin
Tegula mariana mariamadre Pilsbry & Lowe
Tegula rugosa A. Adams
Turbo fluctuosus Wood

Pelecypods:

Aequipecten circularis Sowerby
Cardita affinis Sowerby
Cyclinella singleyi Dall
Corbula obesa Hinds
Isognomon chemnitzianus Orbigny
Lucina prolongata Carpenter
Macoma aurora Hanley
Mytella guyanensis Lamarck

Pinctada mazatlanica Hanley (a dead pair)
Pitar concinnus Sowerby
Protothaca grata Say
Semele elliptica Sowerby
Semele flaviscens Gould

EXPOSED SAND BAR:

Gastropods:

Cassis centiquadrata Valenciennes
Conus perplexus Sowerby
Dentalium sp.
Oliva incrassata Solander
Oliva undatella Lamarck
Olivella dama Wood
Terebra armillata Hinds
Terebra larvaeformis Hinds

Pelecypods:

Mactra dolabriformis Conrad

Brachiopods:

Glottidea palmeri (?)

TIDE POOLS:

Gastropods:

Anachis coronata Sowerby
Anachis nigricans Sowerby
Anachis sp.
Anachis varia Sowerby
Calyptraea mamillaris Broderip, on Cardium elatum (dead, one valve)
Hormospira maculata Sow. (Crab spec.)
Eupleura muriciformis Brod. " "
Nassarius complanatus Powys
Nassarius iodes Dall
Nassarius onchodes Dall (?)
Nassarius tiarula Kiener
Natica chemnitzi Pfeiffer
Polinices uber Valenciennes (Crab spec.)

AT HIGH TIDE LINE: Heterodonax bimaculatus, dead pairs but colorful
Corbicula sp. (?), single valve, fresh with good color.

EVERGLADES LIGUUS HUNT

By Leon S. Pequignot

Marathon, Florida, February 6th, 1965 ... Weather has been beautiful, the nicest since coming to Florida. Only one cold front and it lasted but a day or two. Haven't done much shelling -- the flats look like a convention, so many tourists out on them milling around.

Last Saturday and Sunday we made a wild trip up in the Everglades country. We left Marathon at 3:30 A. M. with the Hayes. Took breakfast at Homestead about 5:30. Arrived at Trail Center on the Tamiami Trail about daybreak where we met our guide. The government has cut a drainage canal northwest about ten miles long. We drove our cars on top of this narrow dyke to the end. The guide had a swamp buggy there and we loaded up and took out over the headwaters of this canal. It was in scrub cypress country, most spots having about eight inches to a foot of water except the small hammocks which were infrequently encountered. Part of the time we were on old hunter buggy trails and many times we were bogged down in them. The guide, unruffled, would pile out and put cleated planks under the double-tired wagon and somehow we would come out. Getting back in he would go for the sawgrass which stood about six feet tall, dodging cypress trees and coming up with a bang against some hidden cypress knee. We went this way for about five miles, making one stop therein where we found nothing but a hybrid colony of *castaneozonatus*. We arrived at the guide's hunting cabin about 11:30 where we ate our lunch which we had brought along.

What a surprise! He had running water from a drum on top of a platform, electric lights from his own generator, a gas run refrigerator and four burner gas stove with oven. Bunks were built in tiers and, what do you know -- a "Chic Sale" outside, but not too far, so that a person would have an even chance to get back inside if a bear or panther would get inquisitive.

After lunch we took another long jaunt of about four miles through even wilder country than that coming in. The trip went smoothly for the first part, but soon the guide said "We are about to enter low country." I wondered what this meant, but soon found out. We took off through the wilds, running over brush and willow trees as big as my arm. We, up on top of the buggy, hung on for dear life, shoving debris from our faces. Every once in a while the guide would look back at us and we could see his lips move. Guess he was counting us.

Every trip must end and eventually we came to our destination. We found two colonies there: A beautiful white-tipped form, thin with lines running from top to base, a pure colony of the *marmoratus-testudineus glorisylvaticus pattern*, but differing from *glorisylvaticus*. The other colony of these *Liguus* was of the omnipresent *castaneozonatus*, running to the varieties *miamiensis*, *elegans* and *lineolatus*. It was now about 4:30 and I saw the guide scan the sun. None of us would care to be out after dark, so we loaded. Return to the cabin was about the same as the trip in except for one encounter when we were bogged down in two feet, or more, of water with a five-foot long cottonmouth. The guide reached for his gun, which he carries always with him, and shot it. To make us happier he said that last March, when the water was lower, he and his son killed seven cottonmouths which had collected in this pool. The guide had to use the planks again, but did not relish his job with the wounded snake thrashing around.

We arrived back at his camp about dark. The women cooked two chickens which the guide had provided and Dan made his salad which is famous throughout the area -- he promises palm cabbage next time. We ate like kings and soon after made up our bunks and fell into bed. We had four hard showers during the night and as we slept just under the tin roof it was music to our ears, not having experienced anything just like it since I was a boy, up in the haymow of the barn on the farm.

Got up at daybreak. The sky was clearing and soon the sun was peeping over the horizon. After breakfast we loaded up and went in another direction to a hammock close to the Dade-Collier line, about three miles from camp. Here we found a colony of variety clenchi, named for William Clench of Harvard who has done much research in the Liguus field. Also found were yellow and white forms of lossmanicus, also ornatus and several specimens of what I believe are mosieri -- a white-tipped, profusely lined form of the lossmanicus complex. We hit another hammock on our way back and we found two specimens, among other Liguus, that resemble testudineus. Getting back to camp, we loaded up our various belongings and took off for our car. We arrived back home at Marathon about seven o'clock in the evening.

We saw numerous turkey, wildcat, and deer tracks, and counted three deer. We should have had enough of this but we don't. We are planning another trip next Saturday.

(A color plate accompanying the article "Tree Snails, Gems of the Everglades" in the March, 1965 issue of "National Geographic" includes the above mentioned forms of Liguus fasciatus.)

SHELL SHOW DATES:

The Sanibel-Captiva Shell Club will hold its annual shell show March 4-5. St. Petersburg Shell Club Show will be held March 24, 25, 26, 27, 28.

ON TV

Mary Kline appeared on a recent program of "To Tell the Truth". Sorry we did not have advance notice.

Scheduled for March 17, ABC-TV will present a program on "Man in the Sea". "Scenes of the Navy Sea Lab and the work of the nation's three largest oceanography institutes."

D. Germer

WE WELCOME THESE NEW MEMBERS:

Rochester Shell and Shore Club, Mrs. Berniece Plummer, Pres.,
47 Tulane Parkway, Rochester, N. Y. 14623

Miss Jeanette Rudie, 59 Covington Road, Yonkers, N. Y. 10710
Mr. Richard B. Willingham, 4036 Lyons View Pike, Knoxville 19, Tenn.

CHANGE OF ADDRESS:

The Malacological Society of Australia is moving its headquarters from Melbourne to Sydney. All correspondence should be addressed to the Hon. Sec'y/Treas. Dr. D. F. McMichael, c/o The Australian Museum, College St., Sydney, N. S. Wales.

NEW YORK SHELL CLUB NOTES No.110 March 1965

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NEXT MEETING: SUNDAY, APRIL 11th, 1965, at 2:00 P. M.

PROGRAM: THE AMERICAN NAIADS by Harold S. Feinberg
COLLECTING INLAND MOLLUSKS IN NICARAGUA (with color slides) by Morris K. Jacobson
SHELL-OF-THE-MONTH by Anthony D'Attilio
PLANNING OF ANNUAL FIELD TRIP AND OUTING

NEW YORK SHELL CLUB LIBRARY

The literature owned by the New York Shell Club is at long last being listed, catalogued, and made available to attending members. We are most grateful to the Department of Living Invertebrates for making this possible, having allotted precious shelf space for our material, then generously donating many items for those shelves. However, as the area is not open to the public, ours will be a circulating library, on a month to month basis. Selma Feinberg is working to list and catalogue all the various items, and circulation will be inaugurated at our April meeting. (We should cut a ribbon!)

Because of the physical set-up, only members who attend meetings can be accommodated. Request forms will be distributed at meetings, the completed form to be given or mailed to Librarian Feinberg (see masthead for her address) in plenty of time for her to obtain and deliver the requested literature to you at the following meeting. Requests must be made in advance -- our library is not accessible on weekends so no request can be filled on the same day it is made.

All literature borrowed at one meeting is to be returned to the librarian on or before the next meeting -- which allows plenty of time for perusal of any volume.

AMERICAN MALACOLOGICAL UNION, 31st ANNUAL MEETING
New York, July 20-23, 1965

The New York Shell Club and the Staten Island Institute of Arts and Sciences will co-host the 1965 meeting of the American Malacological Union, to be held at Wagner College, 631 Howard Avenue, Staten Island, New York, July 20-23 (Tuesday through Friday).

Dormitory accommodations are double occupancy rooms, $5.00 per person per night. Meals at the cafeteria are at the rate of $4.00 per day. The registration fee of $3.00 will include incidentals and transportation except for Friday's field trip.

Registration Tuesday morning, and lectures Tuesday afternoon and Wednesday, will be in Mastick Lounge, a pleasant meeting room in the freshman dormitory for men. The Staten Island Institute of Arts and Sciences (75 Stuyvesant Place) will host the delegates on Thursday, when lectures will be presented in their auditorium. They will have special exhibits and have arranged to serve a hearty lunch for $1.25.

Evenings are to be informal, with popular presentations. Dr. Parodiz especially requests that any one who has slides of the 1955 meeting at Wagner bring them for showing, and invites delegates to bring shells of their own area (with data, please) for general exchange on Shell Club Night (Tuesday). Also, we have arranged an outdoor picnic for Wednesday evening, to be held in the delightful setting of the campus atop Grymes Hill.

On Thursday evening a reception and cocktail party, given by the New York Shell Club, will precede the banquet at the Staaten House, one of Staten Island's finest restaurants. The entree: Prime Ribs of Beef ($5.50).

An all day field trip to include marine and land shelling will be held Friday; box lunches will be available at $1.00.

This promises to be a fine meeting under the presidency of Dr. Juan J. Parodiz; do plan to attend with your family and friends. Please complete the reservation blank and mail, NOT LATER THAN MAY 15th, to:

Mr. M. K. Jacobson
455 Beach 139th Street
Rockaway Beach, New York 11694

- -

REQUEST FOR RESERVATION: AMU - 31st ANNUAL MEETING
Wagner College, Staten Island.

I expect to attend the meeting and will arrive (date) ____________ (time) __________, by (means of transportation) ________________. There will be ____ in my party. We expect to stay at Wagner College ____; have made private arrangements ____; will commute ____. We plan to attend the banquet ____ and field trip ____ and will use bus ____ own car ____.

NAME ______________________

ADDRESS ______________________

____

(Even if attending only part time, it is important that we have banquet and field trip reservations early.)

PUBLICATIONS:

REVIEW:

THE FAMILY PANDORIDAE IN THE WESTERN ATLANTIC

by Kenneth J. Boss and Arthur S. Merrill.

JOHNSONIA, Vol. 4, No. 44, pp.181 - 216, plates 115 - 126, February 1965.

This is the latest in the superb series of monographs that have been appearing since 1941. In beautiful physical make-up, in excellence of illustrations, and in the thoroughness of treatment it belongs among the best of the lot, which is high praise indeed. The two authors have provided a complete and thorough account of the present state of knowledge of these curious clams, making numerous new contributions themselves. There is a discussion of the synonymy, a clear description of the morphology of the shell and the soft parts, and a detailed account of the distribution.

The family, which contains only one genus, Pandora Bruguière 1797, is divided into two subgenera, Clidiophora Carpenter 1864 and Pandorella Conrad 1863 (= Kennerlia Carpenter 1864). However, the authors express doubt as to the validity of these divisions, since they seem to be based upon characteristics that are variable within the species (dentition in the case of Clidiophora and radial lines on the right valve in Pandorella). The local species, Pandora gouldiana Dall, is placed in Clidiophora, but it also has the radial lines that link it with Pandorella. (page 193) Apparently the authors were also unable to find anatomical distinctions worthy of supporting subgeneric separation.

Pandora gouldiana occurs widely locally, but not in large numbers. The reviewer recalls having dredged six live specimens in shallow water in Cold Spring Harbor several years ago, but that was unusual for him. Even accounts of earlier dredgings in Long Island Sound off the coast of Long Island, such as Sanderson Smith (1859) and A. H. Gardner (1896) report Pandora as "moderately rare" or, more exactly, in lots of 2, 3, 4, 1 and, rarely, 8 specimens. However Perkins (1869) reported it as "abundant" in shallow water off New Haven, and in 1913 some collectors list it as "one of the commonest mollusks in Buzzards Bay and Vineyard Sound". Hence, if any collector wants a good series of this curious, flattened bivalve, he knows where to go for them.

. . . . M. K. Jacobson

MARINE SHELLS OF SOUTHERN AFRICA

By D. H. Kennelly, conchologist on the staff of the East London Museum, MARINE SHELLS OF SOUTHERN AFRICA is a handbook in nontechnical language and well illustrated. There are 30 photographic plates in black and white, 2 double page spreads in color. The book is of 92 pages including text and index. Nelson Press, 1960. In the United States -- Thomas Nelson and Sons, Copewood and Davis Streets, Camden 3, New Jersey. Price of the volume is $4.00.

Nick Katsaras had a copy of this book with him at our March meeting, and delightedly pointed out that included in the illustrations were photographs of the rare and desirable Astralium taylorianum Smith, Voluta ponsonbyi Smith, Voluta africana Reeve, and Voluta pringlei Tomlin.

FOREIGN EXCHANGES

We give these names as a service to collectors who wish to establish some worthwhile contacts abroad:

Fernando G. Dayrit
24 Mahinhin St., U. P. Village
U. P. Post Office, Diliman
Rizal, Philippines

Romeo M. Lumawig
435 Sta. Teresita St.
Sampaloc, Manila
Philippines

Hashim Makame
P. O. Box 1216
Zanzibar
Tanzania

Mr. Dayrit reports that he has resigned his position at the National Museum and is now devoting himself entirely to his shell business.

Mr. Lumawig has also left his civil service job and is a full time dealer in shells. He reports that it has taken him some time to build up a stock of specimen shells but believes that now he can confidently offer these with the prospect of filling all orders.

Mr. Makame, collecting on the Island of Zanzibar, will undertake to collect the local shells of this fabulous shell collecting area. He invites correspondence, and a few of the New York Shell Club collectors can testify to his reliability.

. . . Anthony D'Attilio

BLACK SAND BEACHES

by Gordon Usticke

Several of the islands of the Lesser Antilles have black sandy beaches of volcanic origin, as opposed to the usual white coral sand beaches. As these black sand beaches contain little or no calcium, which is so necessary for the making of the shelly substance of shells, they are usually almost devoid of shells, and it is quite useless to expect to find many specimens on them.

I recently took the time to go over some of these beaches to see what actually lived on them --

The otherwise very common *Tectarius muricatus* is rarely seen. *Littorina ziczac*, *Littorina lineolata* and *Nodolittorina tuberculata* are fairly common on the rocks, also *Nerita versicolor* and *N. tessellata* are not uncommon. On rocks just submerged, many large black *Planaxis nucleus* are crawling about, also several *Tegula excavata* and an occasional *Acmaea antillarum* and *Chiton tuberculatus*. (Notice that all these species feed on algae. - Ed.)

The above ten mollusks are about all that can be found alive; about 25 or so species are occasionally washed up from deeper water, including the ubiquitous *Strombus gigas*.

Black sand beaches are found on the following islands: St. Kitts, Nevis, Montserrat, Martinique (northern half only), Dominica (except northeast portion), St. Vincent (mostly), Grenada (in part), and some of the Grenadines.

** * **

(Mr. Usticke's many enlightening articles on the Caribbean area have been much appreciated by New York Shell Club members. We were happy to tell him so in person at our March meeting, and that we look forward to his future communications. - Ed.)

THE LAND SHELLS OF BIG PINE KEY, FLORIDA

by Morris K. Jacobson

One of the largest of the lower Florida keys which are connected by the Overseas Highway (U. S. 1), is Big Pine Key, located about 25 miles northeast of Key West. It is about five miles long and one mile at its widest point. Its major axis runs north and south rather than east and west like the other major Florida keys (Key Largo, Matecumbe, Key Vaca, etc.) and hence U. S. 1 runs over only a short portion of the island. State highway 940 runs north and south and serves the rest of the island. From this road a number of tributary roads branch off to various portions of the Key.

Big Pine Key is one of the so-called "high keys". Most of it rests on a slightly raised, hard, calcareous formation which in many parts reaches right to the surface. On this type of ground, soil and mulch is very thin, snails finding shelter under numerous limestone boulders of various sizes. As the name indicates, it is one of the few keys that has a high stand of pine trees along its highest areas.

One of the interesting features of Big Pine Key is that its ground water is fresh, not brackish. Old time key dwellers know that where pine trees grow, fresh water wells can be driven into the ground. As a matter of fact, the so-called "Blue Hole", located about one mile north of No Name Key Road along S940, is an old limestone quarry that is now filled with fresh water. Three species of fresh water mollusks occur here. Near the Blue Hole are several "cenotes", sink holes filled with water, much like the famous ones of the Maya country in Yucatan, Mexico.

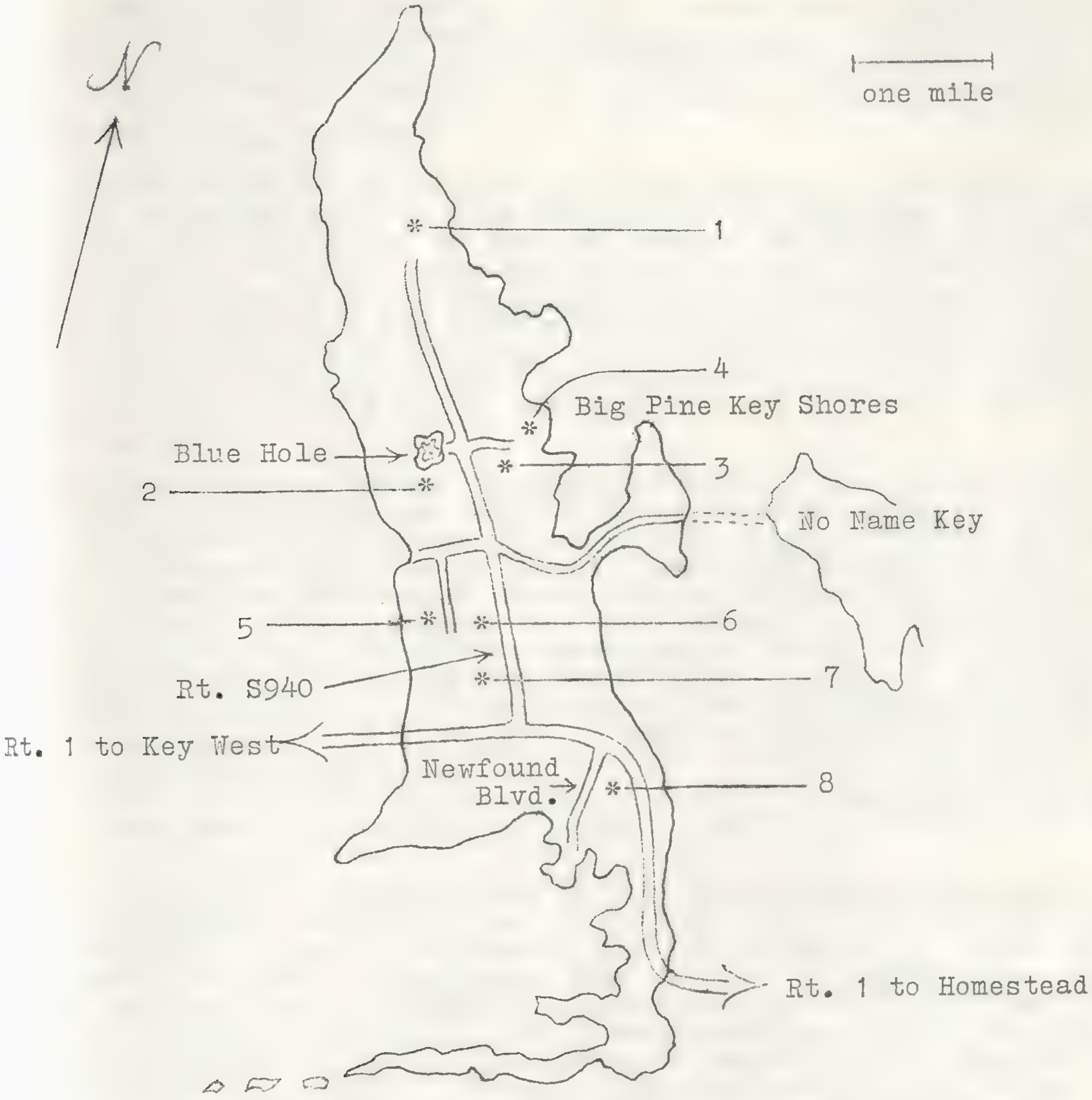
According to Pilsbry, three races of Liguus fasciatus (Müller) occur on Big Pine Key. But, as he wrote in 1946 (p. 52), "Many of the races of the lower keys are now extinct or on the verge of extinction." The fact is that in my several visits to the Key I found no signs of any ligs, not even fragments. But since I was chiefly interested in the smaller, ground dwelling land shells, this did not particularly matter to me.

I collected in eight stations, as indicated on the accompanying map. Of these, only one (#5) was relatively free of limestone, either basic or in the form of free boulders. The other stations, in all of which limestone occurs freely either as basic or as boulders or both, can be divided into two kinds: those with "high" forests -- strongly represented by pine trees (stations 1, 2, 3 and 4), and "low" forests of various types of shrubs, without any large trees (stations 6, 7, 8). The low forest areas, especially #7, show signs of having been extensively flooded by salt water, since I was able to find several (usually dead) species of mollusks associated with salt or brackish water (Melampus, Truncatella, Detracia as well as some true marine bivalves). This fact may explain the absence of pine or other high trees in these forests.

The only difference in the land shell fauna of the high as contrasted with the low forests that I could detect was the presence of large colonies of Cerion incanum in two of the three low forest stations (124 specimens as compared to only 13 specimens -- mainly dead -- in the high forests). Cochlodinella poeyana was found in only one high forest station (#2) and two dead specimens were taken at station 6 which, however, is close enough to a high forest to be strongly influenced by it.

The most common species on the Key were Chondropoma dentatum (547 specimens) occurring in all limestone stations, and Polygyra cereolus, which

BIG PINE KEY, MONROE COUNTY, FLORIDA



1 Pine and palmetto forest, calcareous ground, shallow soil.
2 Low growth, no or few pines, calcareous, shallow soil, signs of salt water inundation.
3 Like station 1.
4 Like 1, but thicker.
5 Like 2, but no signs of salt water inundation.
6 Fresh water pond, ten feet deep, grass and mud bottom.
7 Like 2 but more pines.
8 Deep soil, little exposed calcium, hardwood trees.

Shore areas: generally mangrove.

was found everywhere (418 specimens). The largest numbers of the latter were taken at station 2 (150), a "high" forest area, and station 7 (136 specimens), a "low" forest area. *Helicina clappi* was also found at all stations, though generally in small numbers (45 specimens). The largest numbers were taken at station 1 (14 specimens) and station 2 (20 specimens).

DISCUSSION OF THE SPECIES:

The extreme variation in size of *Polygyra cereolus* in a single population has been commented upon by many authors and is discussed by Pilsbry (p. 585). This proved to be true in several of the Big Pine Key populations as well. However, some populations enjoyed more uniformity of size than others. Thus most of the *cereolus* from station 2 were about 10 mm in diameter, only very few differing materially. Similarly, the shells at station 1 averaged about 9 mm. On the other hand, the colonies of stations 7 and 8 exhibit a pronounced disparity in size (13.5 mm and 7.0 in the former, 14.2 and 8.3 in the latter) with more than half the specimens being small.

Cerion incanum vary greatly in size (from 20 x 8 to 30 x 12 mm), in outline (from cylindrical with more or less parallel sides, to subovate with strongly convex outline), and in sculpture (from comparatively smooth to irregularly rugose with uneven growth lines and/or axial cords). The colony at Newfound Boulevard, which is not far from the locality where Bartsch introduced *C. viaregis* from the Bahamas (cf. Pilsbry, 1946, p. 166), does not differ from the shells elsewhere on the key and hence seems not to have been affected by the introduction of new blood. Of the six specimens taken at station 4, one represents form *fasciatum* Binney (Pilsbry 1946: fig. 77,j); it is distinctly marked with brown axial stripes. Two other specimens are less strongly marked. A few specimens from station 7 seem to belong to the flesh-colored form known as *vaccinum* Pilsbry. However, these and other forms, as Pilsbry points out, "have little significance". (1947, p. 164)

Pilsbry (1946:110) distinguishes between *Microceramus pontificus* (Gould) and *M. floridanus* (Pilsbry), but cites only the former from Big Pine Key. Nevertheless, at station 6, in a lot of 18 specimens, at least four can be clearly assigned to *floridanus* and the rest to *pontificus*. In addition to the smaller size, *floridanus* is distinguished by "lower and blunter sutural papillae" (Pilsbry). The present station, as far as I know, is the only instance in which both "species" appear in one population. This might suggest that what we actually have are only two variations of one single species. If this proves to be so, the name *floridanus* will have to be discarded since it cannot be retained even for subspecific purposes. This situation reminds one of *Cochlodinella jejuna* (Gould) and *C. poeyana* (Orbigny), where the former is rejected because, as Pilsbry writes, "There seems to be no tangible differential character except size" (p. 107). The same thing seems to be true of *Microceramus floridanus*.

LIST OF SPECIES AND STATIONS:

Polygyra (*Polygyra*) *cereolus* (Mühlfeld) - 1,2,3,4,5,6,7,8
Polygyra (*Daedalochila*) *uvulifera* striata Pilsbry - 1,2,4,7,8
Drymaeus (*Mesembrinus*) *multilineatus* (Say) - 1,5,7
Cochlodinella poeyana (Orbigny) - 2,6
Microceramus pontificus (Gould) - 1,2,3,6,7,8
Microceramus "*floridanus*" (Pilsbry) - 6

(continued next page)

Cerion incanum (Binney) - 1,3,4,7,8
Euglandina (Euglandina) rosea (Ferussac) - 1,2,3,4,7,8
Chondropoma dentatum (Say) - 1,2,3,4,6,7,8
Helicina (Helicina) clappi Pilsbry - 1,2,3,4,5,6,7,8

The situation described in this paper obtained in the early part of 1963. Even at that time extensive building operations were being undertaken. What the situation is at present, or what it will be in the future, is unknown. One can be sure that from the point of view of the land shells it cannot be considered to have improved.

LITERATURE:

Pilsbry, "Land Mollusca of North America", Vol. 1, part 2, 1940.
Vol. 2, part 1, 1946.

MORE ABOUT THE AMU MEETING

You need not be an AMU member to attend the meeting. Your registration (fee: $3.00) will qualify you to take part in any or all events, attend any or all lectures. We look forward to having many of our local members present, even if they can be there for only a part of the meeting. Individual meals at the cafeteria are available to all whether or not the delegates are staying on campus, since there are no restaurants within comfortable walking distance.

Miss Weingartner is working to set up an exhibit at the Staten Island Museum of shells lent by NYSC members. Get in touch with her if you have something you would like to exhibit. (The exhibit is to remain for the rest of the summer.)

The Domenico Bus Service has regularly scheduled buses leaving Port Authority Terminal in New York City for Staten Island. They will take you to the stop at Victory Blvd. and Clove Road where you change to the Grymes Hill Shuttle bus to reach the college.

AMU - PACIFIC DIVISION

All AMU members are cordially invited to attend the June 24-27 meeting of the AMU Pacific Division at San Diego. For detailed information, write: Barbara J. Good, 3142 Larga Court, San Diego, California 92110.

B. FRANK GRUNZIG

We have received word of the recent death of our long-time member, Frank Grunzig. No longer a young man, he was unable to recuperate from a condition demanding major surgery.

Though he had travelled extensively, his home was always northern New Jersey. Last year we reported his boyhood reminiscences of the wampum factory site at Pascack. He was a serious collector and was happy to give any assistance he could to researchers.

Our deepest sympathy is with his wife and family.

NEW YORK SHELL CLUB

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March, 1965

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PART I: BOOKS, SCIENTIFIC PAPERS AND PAMPHLETS

Author	Title
Abbott, R. Tucker	Introducing Sea Shells, 1955, 64p.
Allan, Joyce	Australian Shells, 1950, 470p.
American Malacological Union	How to Collect Shells (A Symposium) 1958, 75p.
Baker, Frank Collins	Fieldbook of Illinois Land Snails, 1939, 166p.
Barnard, K. H.	A Beginner's Guide to South African Shells, 215p.
Bartsch, Paul	A Monograph of the West Atlantic Mollusks of the Family Aclididae, 1947, 29p.
Brown, Mrs. C. J.	Haliotidae, 1956, 4p. (Malacological Club of Victoria, Australia)
Chace, Mrs. E. P.	Notes on West American Chitons, 1940, 5p.
Cox, Ian (Editor)	The Scallop (Published by Shell Oil Company) 1957, 135p.
Emerson, W. K. and Jacobson, M. K.	Terrestrial Mollusks of the Belvedere Expedition to the Gulf of California, 1964, 20p.
Glude, John B.	Clam and Chesapeake Oyster Investigations, Annual Report 1956-57, 28p.
" "	The Effect of Man on Shellfish Populations, 1951, 7p.
Goodrich, Calvin	Pleuroceridae of the St. Lawrence River Basin, 1939, 4p.
Grau, Gilbert	Pectinidae of the Eastern Pacific, 1959, 308p.
Gray, Alice	How to Preserve a Collection of Soft-Bodied Insects and Spiders.
Great Outdoors Assoc.	Dictionary of Shells, 1954, 80p.
Hardy, Mrs. A. S.	The Hall of Shells, 1897, 173p.
Hartley, Thelma	Conidae, 1954, 8p. (Malacological Club of Victoria, Australia)
Hertlein, Leo George and Stron, A. M.	Marine Mollusks Collected During the "Askoy" Expedition of Panama, Columbia and Ecuador in 1941. Published 1955, 155p.
Hopkins, Sewell H.	Cercaria Brachidontis N. Sp. from the Hooked Mussel in Louisiana, 1954.
Hubricht, Leslie	Distribution Records of Land Snails in the Southeastern U. S. (Summer 1959)
" "	The Polygyridae of Pittsylvania County, Virginia, 1950, 4p.
" "	The Preservation of Slugs, 1951, 2p.
" "	Pomatiopsis lapidaria, Pomatiopsis praelonga, Pomatiopsis hinkleyi, Trichia hispida. (Reprint from THE NAUTILUS Vol. 74, No.1.)
" "	List of beach drift land snails from south Texas, exclusive of Polygyridae. (Reprint from THE NAUTILUS Vol. 74, No. 2.)
" "	Three New Land Snails from Eastern U. S. 1951, 3p.

Ingram, William W.	The Living Cypraeidae of the Western Hemisphere, 1951, 54p.
Jacobson, Morris K.	Temper, Temper! (From CIRCULARES DEL MUSEO Y BIBLIOTECA DE MALACOLOGIA de la Habana) 1953, 12p.
Jacobson, Morris K. and Emerson, William K.	Shells of the New York City Area, 1961, 135p.
Jarcho, Saul and van Burkalow, A.	A Geographical Study of "Swimmers' Itch" in the U. S. and Canada, 1952, 15p.
Karlin, Edward J. and Naegele, John A.	Slugs and Snails in New York Greenhouses, 1958, 15p.
Keen, A. Myra	Sea Shells of Tropical West America (Marine Mollusks from Lower California to Columbia) 1958, 624p.
Kira, Tetsuaki	A Handbook of Illustrated Shells in Natural Color, 1954, 172p. (In Japanese.)
Klappenbach, Miguel A.	Hallazgo de Una Especie Rara en La Costa de San Pablo, Brasil. Nueva localidad para *Mitra irranagai* Carcelles, 1963, 2p.
" " "	Una Nueva Especie de "Eupera" (Moll., Pelecypoda) del Uruguay, 1962, 6p.
Mark, E. L.	The Bermuda Islands and the Bermuda Biological Station for Research, 1905, 31p.
Melvin, A. Gordon	Gems of World Oceans, 1964, 96p.
Merrill, Arthur S.	Living Inclusions in the Shell of the Sea Scallop *Placopecten magellanicus*, 1960
" " "	Mollusks from a Buoy off Georgia, 1963, 3p.
" " "	Nest Building in the Bivalve Mollusk Genera, *Musculus* and *Lima*, 1963, 6p.
Merrill, Arthur S. and Galtsoff	Notes on Shell Morphology, Growth and Distribution of *Ostrea equestris* Say, 1962, 11p.
Merrill, Arthur S.	Shell Morphology in the Larval and Postlarval Stages of the Sea Scallop *Placopecten magellanicus* (Gmelin), 1961, 20p.
" " "	Some Observations on the Growth and Survival of Organisms on the Shell of *Placopecten magellanicus*, 1961.
" " "	An Unusual Occurrence of *Mya arenaria* L. and Notes on Other Marine Mollusks, 1959, 5p.
" " "	Variation and Change in Surface Sculpture in *Anomia aculeata*, 1962, 10p.
Miner, Roy Waldo	What is a Mollusk Shell? (AMNH Guide #100), 1937, 14p.
" " "	Pearl Divers (AMNH Science Guide #104), 1941.
Morris, Percy A.	A Field Guide to Shells of Our Atlantic and Gulf Coasts, 1947, 190p.
" " "	A Field Guide to Shells of the Pacific Coast and Hawaii, 1952, 220p.
Moulton, James M. and Coffin, G. W.	The Distribution of Venus Larvae in Orr's Cove Plankton over the Tide Cycle and During Summer & Early Fall of 1953. Pub.1954,55p.

Naval, Leonardo E.	Seashells of the Philippines, 1958, 14p.
Nichols, Maynard M., Jr.	Indian Relics from Massapequa, L. I., 1959, 4p.
" " " "	Stages in the Geologic History of Long Island, 1952, 4p.
O'Brien, Helen G.	Shell Album with Ideas for Collectors, 1953, 33p.
Palmer, E. Laurence	Shell Bearers - Some Common Shell Bearers and their Kin (Cornell Rural School Leaflet), 1948-49, 32p.
Perkins, Earle B.	The Story of an Oyster, 1931, 16p.
Powell, A. W. B.	Shells of New Zealand, 1957, 202p.
Roberts, Mary	A Popular History of the Mollusca, 1851, 396p.
Rogers, Julia Ellen	The Shell Book, Revised 1951, 503p.
Saunders, John R.	A Golden Stamp Book of Sea Shells, 1957, 48p.
Schilder, F. A. & M.	Problem der Evolution. Bitte um Mitarbeit an einum wichtigen, 1952, 12p.
Sieling, F. W.	The Hardshell Clam Fishery of Maryland Waters, 1956
Smith, Maxwell	World-Wide Sea Shells, 1940, 84p.
Strong, A. M. and Hertlein, L. G.	Marine Mollusks from Panama, 1939, 245p.
. . . .	Sulle forme mediterranee prossime alla *Mangelia nebula* Montagu: *Mangelia ginnania* Risso e *Mangelia laevigata* Philippi (Reprint from ATTI DELLA ACCADEMIA GIOENIA DI SCIENZE NATURALI)
Tate, Ralph	British Mollusks, 1866, 244p.
Thiele, Johannes	The Phyletic Development of the Pulmonata (Trans. from German by M. K. Jacobson) 1953
Travers, Louise A.	The Romance of Shells in Nature and Art, 1962, 135p.
van der Schalie, Henry	Arnold Edward Ortmann as Revealed by his Letters (In 2 parts, reprints from THE NAUTILUS, Vol. 64, No. 4; Vol. 65, No. 1), 1951
Vlès, Fred	Monographie Sommaire de La Mye (*Mya arenaria* Linne 1767), 1909. English translation 1954, 56p.
Vokes, Emily H.	A Possible Hindu Influence at Teotihuacan, 1963, 2p.
Webb, Walter F.	A Catalogue of Recent Mollusca, 1945, 97p.
" " "	Handbook for Shell Collectors (on Marine Species foreign to the U. S.), 1948, 236p.
Wilson, Douglas P.	Life of the Shore and Shallow Sea, 1952, 213p.
Zim, Herbert and Ingle, Lester	Seashores, A Guide to Shells, Sea Plants, Shore Birds and other Natural Features of American Coasts, 1955, 160p. (Paperbound)

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NEXT MEETING: SUNDAY, MAY 9th, 1965, at 2:00 P. M.

PROGRAM: SOME FACTORS IN THE ECOLOGY OF THE MOLLUSCA
by Dr. William J. Clench
FIELD COLLECTING AND CAMERA CLOSE-UPS
by George Raeihle (with color slides)
SHELL-OF-THE-MONTH by Irving Podell

PROGRAM NOTE: Dr. Clench, Curator of Mollusks of the Museum of Comparative Zoology and Editor of "Johnsonia", is also an active field worker of long experience. It has been over seven years since he last visited us, and we're certainly looking forward to having him as our guest next month.

N. Y. S. C. ANNUAL OUTINGS

At our April meeting the members voted for two outings -- one for land and one for sea. The first one will be to Croton Point Park, in Westchester County on the Hudson River a short distance north of Ossining. Mr. Jacobson describes it as a fine place for an outing, with opportunities for both land and fresh water collecting. It is a small enough park that members should have no trouble finding others of our group -- especially at lunch time in the picnic area.

The date: SATURDAY, JUNE 5th, at CROTON POINT PARK. Low tide 10:00 A.M.

Directions from Manhattan: Follow West Side Highway (Henry Hudson Parkway) into the Saw Mill River Parkway to the Hawthorne Circle. Then follow N. Y. Rt. 9A (combined with N. Y. Rt. 100) to U. S. Rt. 9 near Crotonville

NEW YORK SHELL CLUB NOTES No.111 April 1965

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The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MAY 9th, 1965, at 2:00 P. M.

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(about 8 miles from the Hawthorne Circle). Then follow U. S. Rt. 9 to Harmon-on-Hudson (about 1 mile). Turn left at Croton Point Avenue and follow it to the park.

MARK YOUR CALENDAR for JUNE 5th. CHECK YOUR MAP for CROTON POINT PARK.

* * *

Our second outing will be on Saturday, June 26th to Orient Beach State Park, at the northeastern tip of Long Island. We anticipate a day of perfect weather to compensate for our 1963 drenching. This area offers the best of any local marine shelling and has both open water and back bay areas to work.

Directions: Long Island State Parkway system to Riverhead, then N. Y. Rt. 25 to Orient Beach State Park, park entrance road on your right. If you arrive at the ferry landing, turn around and go back one mile. Low tide at 1:45 P. M.

MARK YOUR CALENDAR for JUNE 26th. CHECK YOUR MAP for ORIENT BEACH STATE PARK.

We're sorry, but previous experiences have proved it impractical for us to charter a bus for either of these trips -- we'll see you there! Bring lunch, sneakers or boots, your favorite shelling tool (a strainer will be useful).

At Orient the bath houses should be open by June 26th, so come prepared if you'd like a swim. No SCUBA, face masks etc. are permitted in the park waters.

PUBLICATIONS:

THE AMERICAN OYSTER, Crassostrea virginica Gmelin

1964, 480 p. il. "This book has been written for biologists, administrators of oyster resource of various States, public health officers, students of marine biology, and oyster growers who may be interested to learn about the life history and mode of living of the American oysters, Crassostrea virginica. Selected bibliographical references accompany each chapter." United States Government Publications. Order from: Superintendent of Documents, Government Printing Office, Washington, D. C. 20402. 38G/S The American Oyster, etc., catalog No. I 49.27:v.64. enclosing remittance of $2.75.

1001 QUESTIONS ANSWERED ABOUT THE SEASHORE

By N. J. Berrill and Jacquelyn Berrill. Grosset and Dunlap, N. Y. 1957. Paperbound, $1.75. 283 pages of text illustrated with line drawings and a few photographs. Uses common names generally with a liberal sprinkling of scientific names. The section on Mollusca is of 62 pages.

This is an interesting and useful book for beginners and all beachcombers. Many of the answers are quotations from Carson, Yonge, Morris, MacGinitie, and Ricketts & Calvin. Scanning the molluscan section we found a few errors (what book is without them?), all of which were in paragraphs containing no reference notation, among them: vegetarian Strombus gigas is

described as a scavenger. However, this belief was held generally until fairly recently, when observation proved otherwise. Again, the horse conch, Pleuroploca (=Fasciolaria) gigantea is reported as feeding exclusively on the large cask shells -- "exclusively" is definitely in error. Also, Anomia simplex is described as having the lower valve so cemented to a rock or whatever that it is never washed ashore. This is wrong on both counts, as the lower valve of simplex is not cemented to a base and is very frequently washed ashore. However, the comparatively few scientific errors we noted in our scanning do not detract from the usefulness of the work as a whole and we can recommend it as a handy guide to the fauna of the seashores. The authors recommend that it be used in connection with Zim and Ingle's "Seashores" or vice versa.

D. Raeihle

KINGDOM OF THE OCTOPUS
The Life History of the Cephalopoda

By Frank W. Lane. A Worlds of Science Book, Pyramid Publications, New York, 1962. A paperbound, 75¢. 287 pages including Appendices and Index. 16 photographic plates, 13 line figures including anatomical diagrams. This edition is for the general reader, so does not contain the specialized bibliography or all the photographs appearing in the original edition, which was published by Sheridan House in 1960. However, few of our members will feel this lack, and will enjoy every chapter of this smoothly written work which is a comprehensive study of the octopus and its relatives -- their food, enemies, locomotion, behavior etc. The reader will also enjoy (?) the tales of experiences with the octopus as recounted by people from various parts of the world.

DR. WILLIAM K. EMERSON ADDRESSES NEW YORK SHELL CLUB

Using color slides and charts, Dr. Emerson taught us much that will help us with our study of the Mollusca. He opened his lecture on "Distribution of Littoral Molluscan Faunas of Baja California, Mexico" with general remarks on the varying patterns of this planet Earth during the past millions of years -- and told us that, 60 million years ago, there were subtropical shells in Alaska.

Dr. Emerson explained how faunal distribution varies through time as land and sea elevations rise and fall, with accompanying climatic changes. With charts he showed us how, in the Pliocene period, the Sea of Cortez reached as far north as Los Angeles -- then in various stages the emergence of Baja California as a peninsula.

Baja California, its mass so barren, presents mute evidence of past ages. Viewed from the sea, the trained observer can see the lines of prehistoric beaches, traced by terraces at different elevations. Fossil marine specimens are found in these terraces in various elevations to 300 feet. In addition, there are at least four main terraces off the coast, each delineating a former sea level. On them are found preserved fossils as well as debris from less ancient kitchen middens that has washed down to the nearest terrace. The scientists have guide fossils with which to date the various deposits, obtaining valuable data on the land masses as well as on the history of molluscan species.

Of mollusks now living half way down the peninsula, the fossil forms are

found in California. It was most interesting to learn that in California deposits have been found fossil specimens that give evidence of the common ancestry of some present-day California and Caribbean species.

Currents and upwellings of cold water greatly affect the distribution of molluscan species. The California current reaches to Rosario - Punta Baja where a cold pocket supports intertidal species as are in Monterey, California. Southward, the bays and lagoons of the lower half of the peninsula serve as refuges for warm water relict species. Inside the Gulf the species are more constant. Of 400 species, 80% were Panamic, 20% Californian, a percentage pretty consistent throughout as the Gulf has, for the most part, warm water. It is estimated that the Californian species became established in the Gulf during the Pleistocene. This area has been isolated by land masses and the extremely deep water off the southern tip of Baja California which prevents larval forms of the Pacific coast from getting around into the Gulf.

Dr. Emerson's presentation demonstrated the value of studying fossils and their forms to help our understanding of present-day mollusca.

dr

SHELL-OF-THE-MONTH RARITIES

There were two "Shell-of-the-Month" presentations in March. First, Bill Old displayed the rare Cypraea surinamensis, an excellent specimen which had been dredged (dead) by Jim Moore of Palmetto, Florida. It had been taken 38 miles off Alligator Light in the Florida Keys, and was sent to the museum for verification. It proved to be the first specimen of this species ever found so far north.

Then Nick Katsaras told of requesting a Voluta irvinae from an Australian dealer. But when in due time a package was received, he was nonplussed to find that it contained, not the Voluta, but a rare Cypraea marginata! Included was the notation that it had been recently collected, found on a trap. This was interesting, but Nick did not appreciate that the dealer had made him responsible for the safety of the valuable shell, which really was a museum specimen -- there are fewer known specimens of Cypraea marginata Gaskoin than of Conus gloriamaris. The impulse was to return it immediately, but there was also the temptation to buy it. He held the shell for a few days. When he showed it at the meeting he was still in a quandary.

Later, in the congenial atmosphere of dinner following the meeting, it occurred to Nick that this specimen might well fill one of the few remaining gaps in the study collection of the American Museum of Natural History. However, quite an expenditure was involved. Meanwhile, another collector was eager to relieve Nick of the responsibility, at a profit.

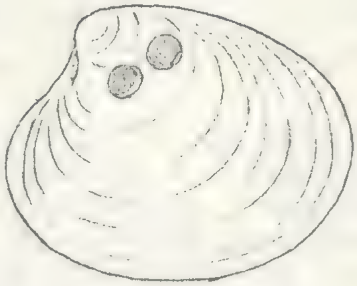
By the time coffee arrived a conspiracy was developing between two old friends: If Nick could see his way clear to donate the Cypraea marginata to the museum, Anthony D'Attilio would match the gift with the very rare Cypraea teremachii Kuroda in his personal collection! Tony had acquired the specimen in the early 1950's, at which time he was advised by Mr. S. Kinoshita, of Shirahama, Japan, that this was only the 6th specimen of Cypraea teremachii that had ever been collected.

And so it was resolved. Moreover, it is apparent to us that Nick and Tony are as happy in the placing of these rare specimens in the museum, where they really belong, as is the museum in receiving them. But there's more: Since then, Jim Moore has donated the Cypraea surinamensis to our museum!

DOUBLE-DRILLED CLAMS

On page 46 of Jacobson and Emerson, SHELLS OF THE NEW YORK CITY AREA (Larchmont, 1961), there is a brief discussion of the holes which are bored by Polinices (the Moon Snails) into the shells of mollusks in order to gain access to the food animal within. In this discussion it is stated that the drilling is done by the "file-like radula and a queer, acid-secreting gland". However, in a paper published in 1951 in Denmark by Dr. Ad. S. Jensen, the case for the "acid-secreting gland" is cogently attacked. Among other points made, Dr. Jensen states that there is no proof that enough acid is secreted to bring about any boring, and that furthermore the acid present on the gland (also called the sucking disk) can be detected in the mucus on the foot and the sides of the snail. Hence it is no special characteristic of the "gland". In brief, although at least one worker (Fischer in 1922) still believed that the secretions of the salivary glands may change calcium carbonate to calcium sulphate and hence make mechanical drilling easier, most evidence seems to indicate that the drilling is done, in a manner not completely understood, by the radula alone.

But regardless of the exact method used by the snail to bore the hole, it is always puzzling to find valves which bear two holes. Recently I found another such shell in Rockaway Beach. It is the left valve of Pitar morrhuana, 1 3/4" long and 1 3/8" high. The two holes lie close together, less than 1/16" apart, just below and behind the umbo, about 1/2" away. The holes themselves are 1/4" in diameter at the upper margin, rather less than that at the tapered, or countersunk, bottom. Though it is not easy to say so definitely, both holes, from the state of freshness of their sides, seem to have been made at about the same time.



Now, how did this come about? As Dr. Jensen says in the article mentioned, no one has been able to see a Natica (or Polinices) at work, because it "will always drill and suck out its victim hidden in the sand". Hence, we can only guess.

Two possibilities suggest themselves: (1) that two Moon Snails worked together on the same shell at the same time and then dined, as Cervantes said of Don Quixote and Sancho Panza, "en buena paz y compañía", or (2) one hole was drilled after the other either (a) when the food had already been entirely removed, or (b) when some food was still left. Let us examine these possibilities.

Possibility (1) is very hard to picture. Since the holes are quite large, it must be assumed that the animals were by no means small. And it is difficult to imagine two relatively huge predators working away simultaneously at holes less than one sixteenth of an inch apart and "nayther knows that t'other is there".

Similarly, possibility (2a) can be discarded immediately. No observer has ever even hinted that the Moon Snails will take the trouble to work uselessly on empty shells. This is especially true when we read (Jensen 1951) that it takes a large Natica more than an hour to drill through

the relatively thin shell of Mya arenaria.

But possibility (2b) also has its difficulties. Let us suppose that Polinices I was frightened away before he finished his meal, and that Polinices II then came along and finished it for him. (Parenthetically it should be recalled that Natica is frequently frightened away from its meals; one can find many shells with the hole only half drilled and not forced through.) Or we can suppose that the cast of characters included, besides the victim, only one Polinices who returned later to dine, after having had to surrender its first chance to eat.* Why then, in either of these cases, didn't the animal use the ready-made hole instead of going to the trouble of making a second one so close to the first?

Puzzling as the problem is, the fact remains that we do find double drilled shells and that we do need an answer. And the best seems to lie with the last possibility discussed. Here we deal with either a very stupid snail or, much more likely, one completely blinded by instinct. Instinct, if it really exists and if we actually know what we are talking about, has frequently been shown to be a blind, remorseless, and unrelenting taskmaster. One act can take place only after another has been performed, whether the second one is needed or not. May we then assume that Polinices is unable to dine on mollusk flesh until it has first performed the action of boring through the shell, much like the poor racoon who must wash its food before eating, even if it happens to be a lump of sugar?

If this is so, then we can easily reconstruct the Case of the Double-Bored Pitar. The first Moon Snail bored away diligently for something more than an hour, but just when he was about to dine he was frightened away or forcibly removed by agent or agents unknown. Along came Moon Snail II and found the clam, either still alive or very recently dead, but at any rate with most if not all the meat still present. But this poor fellow could not eat until he had first performed the act of drilling. Hence the second, completely useless, hole.

Of course, this is all pure speculation, and until a method can be devised to watch Polinices in flagrante delicto, we might never be sure of the answer.

. . . MORRIS K. JACOBSON

** * **

(Editor's note to above Whodunnit:)

Regarding possibility (1): This writer can accept that two Moon Snails sitting nose to nose could have simultaneously drilled those holes in the Pitar, as we have observed the positionings taken by captive Natica feeding on the surface, on scraps of shrimp and clam. In these few instances involving only two specimens, the propodium was lifted up and held close to the shell on either side of the proboscis which, when extended, could move in any direction, including straight down, reaching for food. Thus the little room needed between snails could have been supplied by the angle of their shells as they clung to opposite slopes of the clam shell. However, Natica under the sand does not, or rather may not, take the same position: it seems to hold its food further back, somewhat under the shell, so that all that can be seen (either at the wall of the aquarium or by carefully fanning away the cover of sand) is an irregularly shaped ball of shell and extended mollusk, propodium

and foot meeting under the shell and enveloping the prey. Considering this positioning, possibility (1) *would* seem 'far out'. On the other hand, we know that other species 'gang up' on a victim -- why not the *Natica*? They are able to feed in close quarters -- once we made the mistake of transporting live *Polinices* and live *Tellina* in the same container, a glass jar. Practically all of the *Tellina* were drilled and empty by the time we reached home a few hours later.

In Dr. Jensen's paper were greatly magnified illustrations of the marks left by *Natica*'s radula, the grooves within the drilled, round holes being for the most part perpendicular to the surface of the shell. We can speculate that *Natica*'s very mobile proboscis is able to twist at least slightly while drilling -- or must the snail occasionally shift position in order to make a round hole with a square of its radula? The little *Murex cellulosus* apparently use the second method: they take anywhere from one to three days to drill and eat a bivalve, depending on the thickness of the shell being penetrated. These *Murex*, seemingly using the hole under excavation as an axis, a few times during the drilling raise themselves slightly and shift position as much as, say, 30°. Some twelve to fourteen hours after the start of drilling they may be at a right angle to their original position -- then they may shift back again. Observation here has been necessarily sporadic, but we have seen this procedure so many times that the explanation seems to us a logical one. Occasionally two *Murex* will drill simultaneously on the same mussel; we have never observed two holes as comparatively close as those in the *Pitar*. Perhaps, then, we might assume that *Murex* does need room to turn while drilling?

Also, *Murex cellulosus* seem to demonstrate the "compulsion to drill before feeding" theory as presented by Mr. Jacobson, as they will climb a mussel and start drilling, frequently at the very edge of a valve, even though the mussel might be slightly agape and offering much easier access to food.

Regarding * in (2b) we have one small observation concerning still another species. We removed a *Drupa nodulosa* from the spire of an *Astraea* where examination showed the start of drilling. The incident was repeated, and each time the *Drupa* returned from the other side of the aquarium to its selected victim. Three attacks by the *Drupa* but only one hole, finally penetrating, in the *Astraea*. Examination under magnification revealed no partially worked excavations. (Here we must remind you that this was only one observation of only one specimen of a species unrelated to *Natica*, and we cannot attribute similar behavior to *Polinices* or any other species without observation. But let's have more speculation -- it leads to discovery!)

. . . DOROTHY RAEIHLE

SUMMER EXHIBITS AT STATEN ISLAND MUSEUM

Miss Weingartner is working to set up, with the cooperation of NYSC members, exhibits of (1) Shells of the New York Area,
(2) Shells from the collections of NYSC members.

The exhibits are to remain on display for the summer months at the Staten Island Institute of Arts and Sciences. Members lending shells should bring them to Miss Weingartner at the June meeting.

NEW SHELL CLUBS

PITTSBURGH SHELL CLUB (founded March 27, 1965)
Mrs. Gladys McCallum, Prov. Sec'y
Meadowvue Drive
Route 2
Wexford, Pennsylvania 15090

Our congratulations to the Pittsburgh group with best wishes for the success of the new club.

CHICAGO SHELL CLUB
c/o Ann Frame
2847 West Giddings
Chicago, Illinois 60625

The newest of the AMU-affiliated shell clubs, they are planning a summer shell fair. Good luck to them in their project!

WE WELCOME THESE NEW MEMBERS:

Mrs. Frances Cipollo, 21 Dunham Street, Troy, New York 12180
Mr. Vincent Cuacimano, 309 Court Street, Brooklyn 31, New York
Mrs. H. V. De Journett, 211 Patterson Road, Bethel Park, Pa.
Mr. John A. Graham, 356 Little Street, Belleville, New Jersey 07109
Mr. Edward Renman, 1528 East 53rd Street, Brooklyn, New York 11234
Mrs. H. G. Van Sant, 148 Seagate Road, Palm Beach, Florida

NEW ADDRESSES FOR OLD FRIENDS:

Miss Mabel Bender, c/o Schames, East Hartford, Connecticut 06027
Mr. Sam and Miss Rita Freed, 221 Sunset Ave., Hightstown, New Jersey 08520
Mr. and Mrs. L. Geller, 336 DeMott Ave., Rockville Center, New York
Mr. and Mrs. Fred Tobleman, 116 Abbott Ave., Ocean Grove, New Jersey 07756

CORRECTION

A serious error appeared on page 6 of the last number of the NOTES (No. 110). The description of the localities at the bottom of the page applied not to the map that was printed, but to the field map that was used while collecting.

The following are the correct designations; they should replace the ones that were published.

We suggest you cut on dotted line and attach to the page below the map.
mkj

- -

1 Pine and palmetto forest, calcarious ground, shallow soil.
2 Fresh water pond, 10 feet deep, grass and mud bottom. Pine and palmetto forest, calcareous ground, shallow soil.
3 Like Station 1.
4 Like Station 1 but thicker.
5 Deep soil, little exposed calcium, hardwood trees.
6 Low growth, no or few pines, calcareous, shallow soil, signs of salt water inundation.
7 Like Station 6 but a few more pines.
8 Like Station 6, a few pines, but no signs of salt water inundation.

Shore areas: generally mangrove.

NEW YORK SHELL CLUB NOTES No. 112 May 1965

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. Notify Corres. Sec'y of any change in address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JUNE 13th, 1965, at 2:00 P. M.

PROGRAM: SHELLS - AND BEAUTY BY THE WAY (with color slides)
by Alice Denison Barlow
PREPARATION AND MOUNTING OF RADULAE, by Fred Tobleman
SHELL-OF-THE-MONTH (to be announced)

COMING EVENTS

Saturday, JUNE 5th - Field trip to Croton Point Park. Low tide 10 A. M.
Sunday, JUNE 13th - New York Shell Club, regular meeting.
Saturday, JUNE 26th - Field trip to Orient Beach State Park. Low tide at 1:45 P. M.

And plan to attend, even if only part time, the 31st annual meeting of The American Malacological Union to be held at Wagner College, Staten Island, July 20-23. Is your reservation in? Scientific papers will be presented in morning and afternoon sessions. Evenings will be informal: Tuesday - Shell Club Night, Wednesday - Picnic dinner and informal presentations, Thursday - Banquet. The all day field trip on Friday will be to Sandy Hook.

Members who are lending shells for the summer exhibit at the Staten Island Museum are requested to bring them to Miss Weingartner at our June 13th meeting. This will be an exhibit of world-wide shells. This and other molluscan exhibits are being arranged by the Staten Island Museum (to be correct: The Staten Island Institute of Arts and Sciences) at 75 Stuyvesant Place, in connection with the meeting of the A.M.U. The Museum will host the delegates on Thursday, July 22nd, for the morning and afternoon sessions, and will serve lunch on that day. Hope to see you there.

PUBLICATIONS:

We have on several occasions published reviews of the individual monographs that comprise the series JOHNSONIA. Our readers must recall how highly we regard them.

During his recent visit to our club, Dr. William J. Clench of Harvard University, the editor of JOHNSONIA, pointed out to us that many of these individual monographs are still on sale and can be purchased separately.

In the expectation that some of our readers who are interested in special groups of mollusks would like to know about this, we are printing the following price list of these publications. It should be pointed out that, in these days of rising printing costs, the prices asked for these authoritative and in every way outstanding works are gratifyingly low.

mkj

JOHNSONIA

MONOGRAPHS OF THE MARINE MOLLUSKS OF THE WESTERN ATLANTIC

Published by: The Department of Mollusks, Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138. William J. Clench, Editor.

Since 1942 JOHNSONIA has been of interest and value to both professional and amateur malacologists as well as biologists working in related phases of marine biology. The area covered by this series of monographs extends from Greenland to southern Argentina. Individual numbers of JOHNSONIA vary in length depending upon the problem. They may cover a single genus, a group of genera in one family, or an entire family. This well illustrated series includes complete synonomies and descriptions, distribution records for each species, and when possible data on the ecology, breeding habits, embryology and anatomy.

JOHNSONIA is published at irregular intervals as research on each group is completed.

Subscription (100 pages @ $.04 per page) . . . $4.00

	Unbound	Bound
Volume I . . . . . Out of print		
Volume II (388 pages, 187 plates)	$ 15.84	$ 20.84
Volume III (352 pages, 179 plates)	14.40	19.40
Volume IV		

In the following list of individual numbers, those numbers marked "out of print" are no longer available except when the complete volumes are purchased.

Volume II

Number		Price
19	TEREDINIDAE: Bankia	$ 1.12
20,	MYIDAE: Mya	
21	HALIOTIDAE: Haliotis	.48
22	VOLUTIDAE: Bathyaurinia, Rehderia, Scaphella	.80
23	THAIDIDAE: Purpura, Thais	1.28
24	FISSURELLIDAE: Zeidora, Nesta, Emarginula, Rimula, Puncturella	2.24
25	TRUNCATELLIDAE: Truncatella	.64

Volume II

Number		Price
26	TONNIDAE: *Tonna*, *Eudolium*, *Oocorys*	$ 1.12
27,	LIOTIIDAE: *Cyclostrema*	
28	XANCIDAE: *Xancus*, *Vasum*	out of print.
29	EPITONIIDAE: *Sthenorytis*, *Cirsotrema*, *Acirsa*, *Opalia*, *Amaea*	out of print.
30	EPITONIIDAE: *Epitonium*: (*Epitonium*), (*Cycloscala*), (*Gyroscala*)	1.60
31	EPITONIIDAE: *Epitonium*: (*Asperiscala*), (*Boreoscala*), *Depressiscala*, *Cylindriscala*, *Nystiella*, *Solutiscala*	out of print.
32	Review, Index, Introduction	1.60

Volume III

Number		Price
33	PHOLADIDAE, I: Pholadinae: *Barnea*, *Cyrtopleura*, *Zirfaea*	2.56
34	PHOLADIDAE, II: Martesiinae: *Chaceia*, *Penitella*, *Pholadidea*, *Lignopholas*, *Martesia*, *Diplothyra*, *Parapholas*; Jouannetiinae: *Jouannetia*, *Nettastomella*; Xylophaginae: *Xylophaga*	3.84
35	MELONGENIIDAE: *Melongena*, *Pugilina*	out of print.
36	CYMATIIDAE: *Charonia*, *Cymatium*, *Distorsio*	2.24
37	PHASIANELLIDAE: *Phasianella*, *Gabrielona*, *Tricola*	1.60
38	PINNIDAE: *Pinna*, *Atrina*	1.76
39	Review, Index, Introduction	1.28

Volume IV

Number		
40	TROCHIDAE: *Calliostoma*	3.20
41	MYTILIDAE: *Lithophaga*	1.44
42	ELLOBIIDAE: *Pedipes*, *Laemodonta*	.48
43	VOLUTINAE: Volutidae: *Voluta*; Zidoninae: *Zidona*, *Adelomelon*, *Provocator*; Odontocymbiolinae: *Odontocymbiola*; Calliotectinae: *Howellia*	2.08
44	PANDORIDAE: *Pandora*	1.44

(Checks or money orders should be made payable to: William J. Clench, Museum of Comparative Zoology, Harvard University, Cambridge, Mass., 02138.)

Re: MARINE SHELLS OF SOUTH AFRICA

As per the March 'Shell Notes', No. 110, I sent an order to Thomas Nelson and Sons, at the Camden address, requesting a copy of MARINE SHELLS OF SOUTH AFRICA. The request and check were returned with a notation that the book should be ordered from the London branch of the firm. The address is: Thomas Nelson and Sons, Ltd., 36 Park Street, London W 1, England.

Jack Graham

BEACHES WHERE I HAVE GATHERED SHELLS
No. 3: THE GIPPSLAND LAKES - LAKES ENTRANCE
by Vilma Wicks

(Foreword: Gippsland is a district in S. E. Victoria, Australia, named after Sir George Gipps. Its approximately 14,000 square miles encompass mountains, rivers and sea shore, with its coastline of 250 or more miles stretching to Cape Howe at the border of New South Wales. The town of Bairnsdale (five hours by rail from Melbourne) is rather centrally located east to west near the coast of Gippsland, and is perhaps 25 miles west of Lakes Entrance. --Ed.)

Lakes Entrance is a delightful place for a holiday. It is a long way from any capital city, but has plenty to offer for the permanent resident. Deep sea fishing is carried out here by trawlers. It is a place where one comes up against water at every turn. People of all ages, including little children, fish from piers, from boats, from rocks, from the bottom of cliffs. No matter which way you turn you will see fishing lines. In the centre of the town there is a foot-bridge across the lake to the beach.

The beach is long and wide, with lovely clean sand. There are lots of dead shells (single valves mainly) at the high tide mark, washed in from the ocean. A beach a few miles further on is called Red Bluff. It is reached from the headland by a rather narrow track passing down, having been cut through. I found in the black earth on either side, which was shoulder high, a large number of Subninella undulata.

I believe this to be an aboriginal kitchen midden. Many hundreds of years ago the aboriginals gathered the shellfish, and in a particular place cooked them and sat down to eat their meal leaving behind the shells. These shells were down quite a depth below the surface, so that it must have been a great time back.

It might be of interest if I tell you that there are aboriginals in certain parts of the interior of Australia living today as they did in the Stone Age. These people are living in the most primitive state of any people on Earth. Not all of our Aboriginals, of course, are living in that manner.

I found Red Bluff Beach quite exciting. It was completely virgin in its atmosphere: the ocean rolling in, high cliffs off the beautiful beach, and to add to the excitement -- huge footprints of some animal in the sand. I decided they were of kangaroos, as each set of prints was so far apart. These animals evidently come down to the beach at daybreak. They must be very large.

On the beach, I found, washed in, many pairs of the bivalve Veletuceta flammeus. This shell has such a diversity of pattern -- it ranges from practically white to orange with white flashes to almost all orange. It is one of the more attractive species of a rather drab family. This particular species is not found more westerly than Lakes Entrance as far as I know. It is definitely not found in South Australia.

I walked along the beach as far as Lake Tyers, where there is an aboriginal settlement. At times along the Ninety Mile Beach the Roadnightae Volute is washed ashore. It comes from deep water and only dead specimens were obtained until lately. Now dredging has procured live specimens.

The story of the first one discovered is well known to Victorian collectors, but for the benefit of members in America who may not have heard, the story is well worth telling. Baron von Mueller, the eminent botonist, whilst visiting the Gippsland Lakes District, noticed an unusual shell which was propping up the bedroom window at his hotel. It proved to be a hitherto unknown shell.

Upon enquiring, he learned that the landlord's mother, Mrs. Roadnight, found it on the Ninety Mile Beach. To honor the finder of this beautiful shell it was named Pterospira roadnightae by Sir Frederick McCoy in 1881.

The entrance to the Lakes from the ocean is an artificial one. It was opened to shipping in 1889. Problems arose with the forming of sand bars and caused a hazard to fishing vessels; also certain fish disappeared to live in conditions suited to their requirements. The advantages evidently outweighed the disadvantages, because today this beautiful and bountiful Lakes Entrance is a "Gem of the South".

(Mrs. Wicks' previous articles on Australian beaches appeared in NOTES No. 94 and 105.)

FRUSTRATION IN SURINAM

The account in the April issue of Jim Moore's generous gift to the Museum of Cypraea surinamensis was read with great interest. In planning for last winter's freighter trip with turn-around layover scheduled for Paramaribo we (editorial we, that is) recalled reading of this species in an earlier issue of NYSC NOTES.

Really did not expect to find a specimen on the beach, but one may always hope. However, all hope vanished when it was learned that Surinam has no beaches but is fringed by jungle and mangrove swamp.

So, next best: Went to the local museum to see a specimen. There the kindly Dutch curator readily gave free access to the shell collection. But -- no Cypraea surinamensis! Sought explanation. "Oh no, that species does not occur on our coast, we have never seen a specimen. I believe it is found in Curacao."

Blinking back the tears (but not really) we browsed through the rest of the meager collection. The only item of real interest was one lot of huge and sinistral Liguus. "Our only Liguus; it is from the jungle growth near our Zanderij Airport and not at all common. It is possible to search all day for only one or two."

Home finally after tribulation (kicked from the ship in Jamaica and flown back to New Orleans because of longshoremen's strike), we attempted to sort out the highlights and lowlights of the trip. We realized then that the name of the Surinam Liguus had been forgotten so sought the aid of dear kindly learned Dr. Clench. No research needed there -- not one bit: "Not Liguus but Corona", wrote d. k. l. Dr. C. (Corona regalis? regina? Can't remember.)

We quit. When a shell named for Surinam is found in Florida and Liguus is not Liguus but synonym for a cigar something is amiss. Best we stay with the simple uncomplicated fauna of Wisconsin where one is confounded only by the look-alikes of F. C. Baker.

. . . . . MARGARET C. TESKEY

POSTSCRIPT TO A FIELD TRIP
(Concerning *Neritina reclivata* and *Littorina irrorata*)
by Dorothy Raeihle

A few specimens each of the Olive Nerite (*Neritina reclivata* Say) and the Marsh Periwinkle (*Littorina irrorata* Say) were brought back from the AMU meeting in New Orleans last summer, carried in plastic containers with water, algae and grass stems from their own habitat. The snails were collected from the tall grasses in the edge of the brackish and rather muddy water at Fort Pike, Orleans Parish, Louisiana, on July 23rd (Fort Pike is on the Rigolets, one of the passageways from Lake Pontchartrain to the Gulf of Mexico). At home the first consideration was to give them water of matching salinity. Using a hydrometer, we found the specific gravity of the Rigolets water to be 07½, then to a measured amount of sea water (sp. gr. 15) we added fresh water until 07½ was indicated. The formula: 5 parts sea water + 9 parts fresh water.

Both the *Neritina reclivata* and *Littorina irrorata* fed readily on our northern marine algae and on the "saw grass" collected for them at Jones Bay. We tried other foods, including the stems of various cut flowers past their prime as home decorations. Of these, woody stems were not fed upon, but the thick, pulpy stems of gladioli were grazed by both species. The *Littorina* ate also an occasional bit of lettuce. However, two days after the stem of a dahlia was introduced into their aquarium, half of the *Neritinas* and one of the *Littorinas* were dead. Since then -- no more experiments with flower stems!

On July 29th I found *Neritina* egg cases newly deposited on the stones. They were tiny (3/4 mm. x 1 1/4 mm.), irregularly oval, fragile flat caps of a shelly substance. I could not see that any development of the eggs took place.

As in their natural habitat, the *Neritina reclivata* positioned themselves at or below the water line for most of the time. It was interesting that not one specimen of the very many of this species observed on the field trip last July was without erosion of the shell, even those in the fairly open but still brackish water of Mississippi Sound at Clermont Harbor. On young specimens perhaps only the apex was eroded, but the adults commonly had a considerable amount of erosion on the body whorl as well. In contrast the *Littorina irrorata*, which spend most of their time well *out* of water, were all fine, clean specimens.

The *Neritina* were kept in water of the original salinity from the time of collection until late April, when they became museum specimens. At that time Bill Old, who had received them in November, advised that all those surviving the nine months in captivity had put on ¼" of fine, clean new growth (no erosion), slightly lighter in color than the rest of the body whorl.

As *Littorina irrorata* is also found in water of salinities equal to that of the sea, I wondered if representatives from generations living in brackish water could thrive in undiluted sea water. In early January I started to gradually increase the salinity for the three surviving specimens. At the end of 4½ months the snails seem to be doing well in a mix of 5 parts sea water to 5 parts fresh water, and their new growth now measures 4 mm. of slightly darker shell.

In conversation after the annual meeting of the American Littoral Society on May 16th I learned that the salinity of the Rigolets (pronounced

Rig'-o-lees') varies greatly according to the winds. Strong winds from the direction of the Gulf of Mexico will push in and hold water in the passageways; fish from the open water come in with the water of high saline content and have been observed at least as far in as Fort pike -- among them Perch, Spotted Trout, and Redfish (Drum). The Redfish have been observed feeding in the tall marsh grasses edging the Rigolets and examination of stomach contents has shown that at least a part of their diet was the little top-shaped Littorina irrorata.

A change in the wind direction and water from Lake Pontchartrain will predominate in the passageways. Thus the Littorina of Fort Pike are exposed to a natural variation of salinity which undoubtedly accounts for the "adaptation" to date of these in captivity -- they were already acclimated! This was a good lesson for an amateur observer: LEARN THE VARYING CONDITIONS OF THE MOLLUSK'S NATURAL HABITAT!

IDLE HOUR DEPARTMENT:

THE WINKLE WALK

I have never noticed any of our other snails "walk" as do the Littorina irrorata. You may have noticed in many gastropods a faint line down the center of the sole of the foot. Usually we have just idly noted it as "some central line to do with the snail's anatomy" as we watched a snail proceed smoothly up the side of the aquarium, the foot gliding along the glass with only a faint ripple to indicate its manner of propulsion. But Littorina irrorata moves along by advancing first all the section of sole on one side of this central line, then bringing up and advancing the other half of the sole. This left-side, right-side, left-side, right-side manner of forward locomotion I can only describe as a snail "walk" when compared to the way so many other species glide along with the entire sole advancing evenly.

After seeing this I had to check our local periwinkle, Littorina littorea. It took a close look to see that there was a similar motion of left-right, but only on the leading edge of the foot. Then I collected Littorina saxatilis and had to wait until I could catch it proceeding across the glass at full speed. Here again was similarity and difference: This snail's propodium (the leading portion of the foot) advances evenly and smoothly while the back part of the foot is so energetic in the left-right, left-right movement that when viewed from the rear the alternating glimpses of its foot reminded me of the paddling of a duck.

It was interesting, too, to see that the animals of L. irrorata and L. littorea had the same fine black striping, while the animal of L. saxatilis is quite light in color and without the definite striping.

This summer I'll be looking for a Littorina obtusata to see if it, too, "walks".

While we're on the subject . . . Did you know that the little Pedipes is so-called "because of a loping method of progression"? The name, Pedipes, "an attempt to latinize the French word 'pieten', a pedestrian". (JOHNSONIA, Vol. 4, No. 42) . . . Also, Pedipes' common name is "The Stepping Shell". (Poirier, 1954)

Pedipes' foot does not use the left-right motion -- This snail "humps" along, and can proceed at a fairly good pace for one so small (1/8").

D. Raeihle

THE QUESTION BOX

Question: How do you go about getting a collection ready to catalog?

Answer: You will find excellent directions for preparing shells for a collection, and instructions on cataloguing them, in the introductory chapters of several shell books, especially AMERICAN SEASHELLS, by R. Tucker Abbott, 1954 (Chapter V), so we won't go into mechanical details here. We do stress, however, that you yourself check the identification (data slips can get mixed up!), consulting several books if necessary, comparing illustrations and descriptions. Only by doing this will you become familiar with the shells and their families, learning the characteristics that are clues to proper identification. You will have a sense of achievement when you finally have identified the puzzlers. Consult an expert only as a last resort, after having checked every available source of information at your disposal.

A FURTHER NOTE ON THREE RARE CYPRAEA

Last month we reported the generous gifts to our Museum of *Cypraea surinamensis*, *Cypraea marginata*, and *Cypraea teremachii*. We now have a bit more background to that conspiracy: It seems that it was Jim Moore's generosity in giving the rare *C. surinamensis* that presented a challenge. Our two conspirators, Nick Katsaras and Tony D'Attilio, would not be outdone and so gave their rarest, the *C. marginata* and the *C. teremachii*.

In a letter to Nick concerning the *Cypraea marginata*, Dr. W. K. Emerson wrote: "....This species was based on a unique specimen until 1962, when the species was rediscovered....We are fortunate to be the only public museum in this country that now can claim to have this rare species represented in its collection."

WE WELCOME THESE NEW MEMBERS:

Willie R. Antonowitz, 149 Starr Street, Brooklyn, N. Y. 11237
Master David Smallman, 56 Hamilton Drive, Roslyn, New York
Bruce Thiel, Route 2, Bovey, Minnesota

In welcoming new members last month we gave you an incorrect spelling. Please correct your records for:

Mr. Vincent Cusumano, 309 Court Street, Brooklyn, N. Y. 11231

We give you a new address for:

Miss Janet Campbell, 3 Tiny Lane, Deal, New Jersey.

FROM A NEW MEMBER:

"I am fourteen years old and have been collecting shells for two years. I've quite a few Florida and world wide shells I would like to exchange for those from the New York area or for other world wide shells.

Sincerely, Bruce Thiel
Route 2
Bovey, Minn. "

NEW YORK SHELL CLUB NOTES No.113 June-July-August 1965

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These NNOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor.

Please notify Corresponding Secretary of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, SEPTEMBER 12th, 1965, at 2:00 P. M.

PROGRAM: CARIBBEAN COLLECTING (with color slides)
by Ethelyn Hurd Woodlock
MEXICAN MISCELLANY (with color slides)
by Edward F. Cowles, Jr.
SHELL-OF-THE-MONTH (to be announced)
REPORT OF AMU MEETING by NYSC delegates

COMING EVENTS

The big event of the summer will be the 31st annual meeting of the American Malacological Meeting, July 20-23. Sessions will be held on the campus of Wagner College on Tuesday and Wednesday, July 20th and 21st. On Thursday, July 22nd, sessions will be held at the Staten Island Institute of Arts and Sciences. Evenings will be informal: Tuesday -- Shell Club Night; Wednesday -- informal presentations; Thursday -- the annual banquet. On Friday there will be an all day field trip to Sandy Hook.

Members will find the campus easily reached by automobile: From Brooklyn and Long Island, use the Verrazano Bridge into Interstate Highway No. 278, exit at "Richmond Road-Clove Road", proceed along the service road about one mile, turning on to Clove Road (a right turn) at the third traffic light. Another right turn about one block up Clove Road on to Howard Avenue -- and up the hill to the campus. From New Jersey, the Goethals Bridge into Interstate Highway 278, exit at "Clove Road" (check your map for how far on the service road), left on Clove Road under the

highway and another block north to Howard Avenue. On campus we expect to have signs directing you to "AMU". As for those traveling on Thursday, the Staten Island Institute of Arts and Sciences is in the section near the ferry landing at St. George, and is located at 75 Stuyvesant Place. . . . See you there!

SHELL SHOW

Those of you vacationing in Florida will be interested in the Jacksonville Shell Club's fourth annual "Shell Show", to be held at: The Garden Club of Jacksonville, 1005 Riverside Avenue, Jacksonville, Florida, opening at 6:30 PM Friday, July 30th and running through Sunday, August 1st to 9 PM.

NYSC 1965-66

We have a full program for our first meeting of next season, September 12. Circle the date on your calendar! At the following meeting, October 10, Dr. Robert Robertson of the Academy of Natural Sciences of Philadelphia will be our guest speaker. Several other programs are in preparation, and next April we plan to hold a NYSC auction. It promises to be a full year!

KATSARAS AUCTION SEPTEMBER 19

Nick Katsaras will hold another of his famous auctions on Sunday, September 19th, 1965, from 1:00 to 6:00 PM, with the shells on display from noon to 1:00 PM. The place, as before, is the National Arts Club, at 15 Gramercy Park (20th Street near Irving Place), New York City. We have a partial list of shells to be offered -- it includes so many fine shells we cannot list them here. A word to the uninitiated: Put "an apple" in your pocket for a bit of lunch during intermission -- it's a long session and you don't want to miss anything.

MOLLUSKS IN INDUSTRY

NYSC member Wayne Sweatt called our attention to an article in "The Laboratory", Vol. 33:2/Fisher Scientific, Publisher. Headed "Who ordered the Algerian snails for the adhesives lab?", it tells of work being done at Evans Research and Development Corporation, New York City. Scientist Harold F. Wakefield is currently engaged in experiments with snail "slime" in seeking a substance for possible use in bonding one surface to another. Mr. Wakefield has been conditioning the Algerian snails to cross the surface of a particular plastic (Teflon) to reach their food, thus collecting mucus trails for observation. It was reported that after the "slime" had dried it "defied all attempts...to peel it off the...notoriously unstickable plastic".

It is hard to say definitely, but the mollusks in the photograph seem to match exactly the description and illustration in "Shells of the New York City Area" (Jacobson and Emerson) of Helix aspersa Müller.

WE WELCOME THESE NEW MEMBERS:

Renato Jaeger, 153 Carlisle Terrace, Ridgewood, New Jersey
Zoya Gilevich, 51 West 73rd Street, Apt. 8, New York, New York 10023

NYSC FIELD TRIP TO CROTON POINT STATE PARK

by Harold S. Feinberg

On June 5th twenty-three members gathered at the shore of the Hudson River at Croton Point Park to begin the day's collecting. Everybody found all the *Congeria leucophaeata* Conrad they wanted, under the rocks. The Hudson River is the northernmost area of the range of this interesting little brackish-water mussel. Then Mike Werner announced the finding of *Hydrobia minuta* Totten and soon we all found them. The only other shell we found in this river was *Crassostrea virginica* Gmelin. We wondered where all the oyster shells came from because they are not living there now.

The sun was warm and the sky clear and we succumbed to the pleasurable "sport" of eating and relaxing. After quite a few hours of this exhausting activity somebody remembered that we were here to collect shells. Thermoses were packed as comfortable chairs and blankets were vacated and the hunt for land shells was on.

After turning over many logs and looking under leaves we succeeded in getting stung by nettles, scratched by briers, and bitten by both ants and mosquitoes. It was well worth it, though, because shell collecting was good:

There were two species of the family Pupillidae, *Pupoides albilabris* (C. B. Adams) and *Gastrocopta contracta* Say. The former species is important because it is not included in "Shells of the New York City Area" by Jacobson and Emerson. Other snails found here were *Anguispira alternata* Say, *Succinea ovalis* Say, *Zonitoides arboreus* Say, and *Valonia pulchella* Müller. This area produced no less than four species of slugs. The most important of them, the find of the day, was *Arion hortensis* Ferussac. To the best of our knowledge this is a new record for the New York area. The other three slugs were the large, striped *Limax maximus* Linné and the smaller, dull colored *Deroceras laeve* (Müller) and *D. reticulatum* (Müller).

After another round of rest and relaxation we decided to try our luck at Annsville Cut. The problem was that the only one of our party who had ever been there was your reporter -- and that was over ten years ago! Armed with a map and faulty memory we led a caravan of cars over hill and dale and several wrong turns. When we finally arrived we had lost two cars -- for all we know they are still riding the back roads of Westchester County. We were looking for *Triodopsis albolabris traversensis* Leach which was found on the cliffs years ago. Four dead shells were collected and we felt successful. However, when we arrived home and compared the shells with others in our collection we decided that they were *Triodopsis albolabris albolabris* Say. These shells are as small as *traversensis* but have the heavier, lower spired shells with the thicker lip of true *albolabris*. At this place we also collected *Anguispira alternata* Say, *Arion circumscriptus* Johnston, and *Oxychilus cellarius* Müller.

NYSC FIELD TRIP TO ORIENT BEACH STATE PARK

by Dorothy Jensen

The New York Shell Club field trip to Orient on June 26th not only was successful, it even made up for the rained-out trip to the same area two years ago. The weather was perfect, the water refreshing, and the com-

panionship delightful. The turnout was of about forty eager collectors and low tide was approximately 1:30 P. M.

Not long after arriving, Harold Feinberg gave a joyful yell as he found his first Chaetopleura apiculata Say. When he found a second one it was almost too much for the rest of us. What is more, these were good-sized specimens, the smaller of the two measuring 18 mm. in length. Also discovered by Harold was the tiny, parasitic Odostomia seminuda C. B. Adams feeding on Crepidula. Albert Taxson found good-sized Bittium alternatum Say on the seaweed. Many of us saw for the first time the living Aequipecten irradians Lamarck. Most of the Busycon found were juveniles.

Though no new species were found on this trip, practically all of those listed from previous trips (see NOTES #63, #73, #93) were again observed. Some of the mollusks were collected for the Staten Island Museum's live exhibit, being planned for the AMU meeting, and were carried home in a container brought for that purpose.*

The candid camera bugs were out in force, too. We may never live down some of the pictures but we will remember this club outing.

*(At this writing more species are needed, some of those collected not adapting to aquarium conditions and a few specimens unexpectedly (to us, at least) falling prey to carnivores. -- Ed.)

PRELIMINARY OBSERVATIONS OF SPHAERIUM IN THE BROOKLYN BOTANIC GARDEN

by David Leibowitz

On Monday, May 31, I was walking with a friend in the Brooklyn Botanic Garden. When I looked in the stream just below the Cherry Tree Lawn, I was very surprised to find fingernail clams on the mud bottom. At first I saw only empty valves, but then found some living individuals. These I put in a 4-dram plastic vial along with some spirogyra, a few immature gastropods, and some mud. These clams were large, about ¼" in width. I have only identified them as far as genus Sphaerium.

I have always found that the smaller a closed community of organisms the more successful it is. This little vial of clams, snails, spirogyra, and ostracods has prospered surprisingly well.

There were about five large clams and one or two small ones. On Tuesday the clams had climbed up the side of the vial, and hung there with their inhalent and exhalent siphons extended and were quite active -- each day I found them in different positions. Whenever the vial was moved slightly, they immediately pulled in their siphons and closed their valves.

A week later about three of the large clams had died, but -- and this is the amazing thing about such a small group of organisms -- the water had not turned cloudy, and the remaining organisms were still alive. At this time I noticed that these live-bearing clams had apparently reproduced, for there were quite a few tiny specimens on the side of the vial, only a bit more than a millimeter in width.

On June 1 I returned to the stream with another small vial and stuffed it full of the algae that grows in moss-like mats on the sides of the stream, with the intent of preparing an aquarium for the small clams. When I opened the vial a few minutes later about twenty fingernail clams had congregated at the top. I had not even known a single clam to be in the vial.

At home, I had some tapwater which had been standing around for a long time, and this I put in a gallon glass jar along with a piece of mica schist and the contents of my second vial. What happened next was very hard to believe. Each clam stuck out a long foot and started moving around the jar and up its sides with amazing energy and speed. In all, the aquarium contained algae, clams, snails, ostracods, protozoans, and annelids.

This jar aquarium is still going well, and the clams are alive.

There are many interesting puzzles about these clams. A most obvious one is their presence in the stream. There are three major possibilities:

(a) that someone had them in an aquarium, wanted to get rid of the aquarium but did not wish to kill the clams, so he or she dumped the contents into the stream where the clams found excellent conditions for reproduction;
(b) there were always clams in such profusion, only I have just never been aware of their existence;
(c) that there were always small numbers of hardy clams in the stream or at its source, and that conditions all of a sudden became favorable.

(a) is a possibility, but unless someone confesses I'll never know.
(b) is also likely because these clams were found in the upper portions of the stream, where I rarely look. I will try to find something in literature or someone's experience to verify or discard this.
(c), it seems to me, is the most likely. From the behavior of the clams when the vial is touched, they like calm water. Also, if water is running, these clams, being very light, would be washed away and might find it impossible to find a place to settle down. This requirement for calm water is fulfilled by the sparse rainfall we have been having; the whole lower portion of the stream was dried up on Tuesday.

There must be other factors involved, but here I run into trouble because of my lack of information. By the tremendous numbers of dead shells in the stream, it was apparent that this population explosion of clams had been going on for some time before my arrival, and I am completely ignorant of the history of this explosion or of the conditions in the stream during a great deal of time.

An interesting study is of the clams' method of locomotion. I do not understand the process well although I have observed it many times. The foot emerges from the shell conically shaped, and extends itself for varying distances. When the clam is about to move, the tip of the foot flattens out against whatever the clam is using as an anchor. How this tip of the foot holds on I have been unsuccessfully trying to determine. There are one or more rows of cilia along the foot, which presumably help move it. Once the foot is anchored, it twists, and then bends in certain places, pulling the clam along in two jerks.

I am also puzzled by the way in which the clams attach themselves to objects. The only method I am sure of is that a clam will cling to a strand of algae by closing its shell on it. However, the clams have some method for attaching themselves to rocks, leaves, and the side of a vial when there is no algae involved. I suspect they have some sort of byssal thread.

The shells of the clams are covered by minute, short, widely-spaced hairs*

(which start at the beak and end a distance from the edge), occasional alga cells, and one specimen carried around a tremendous colony of vorticellae.

Fingernail clams are excellent bivalves for research because they can be raised without elaborate equipment, their life span seems to be short in relation to that of other bivalves, and they can be conveniently examined by microscope. A wonderful advantage of these clams, especially the small ones, is that the internal organs can often be seen reasonably well right through the shell. This makes it possible to visually take the pulse rate, and to see the reactions of various organs to many stimuli. I hope to report on my progress in this area soon.

*(Actually the shell of Sphaerium is porous, and the "hairs" are tiny projections of the mantle epithelium. -- mkj)

DEALER IN NATURAL HISTORY BOOKS: JOHN Q. BURCH
DEALER IN SPECIMEN SHELLS: RICHARD E. PETIT

John Q. Burch of Los Angeles has done more to stimulate popular interest in conchology than anyone we can name. For several years his mimeographed publication stood alone, and he is more or less responsible for the formation of more than one shell club in his area. A dealer for many years, he is also a student and has an extensive personal collection and library. This spring he announced that he was going to take it a little easier -- "We wish to travel more and have more leisure to study our shells." To this end he has divested himself of his dealership in shells, but will continue to sell books.

Richard E. Petit has purchased Mr. Burch's entire inventory of specimen shells and will conduct his newly acquired shell business from South Carolina. We were pleased to learn that Mr. Petit was the one who had purchased the dealership, considering him capable and knowledgable. He writes that after unpacking "It will be several weeks before I get out my first price list, with a notice of the fact that I've bought John's shell business." We assume that if you are on Mr. Burch's mailing list that you will hear from Mr. Petit.

As noted above, the dealership in books is being retained by Mr. Burch. The address: Mr. John Q. Burch, 4206 Halldale Avenue, Los Angeles, California 90062.

Mr. Petit is a former president of the South Carolina Grand Strand Shell Club and has been a NYSC member for some years. His address:
Mr. Richard E. Petit, P. O. Box 133, Ocean Drive Beach, South Carolina.

SEA FRONTIERS, Vol. 11, No. 3

SEA FRONTIERS is the magazine of the International Oceanographic Foundation, 1 Rickenbacker Causeway, Virginia Key, Miami, Florida 33149. The issue of May-June, 1965 (Vol. 11, No. 3) carries two articles of particular interest to shell club members:

"The Exquisite Argonaut", by William M. Stephens, with photographs of the living animals by the author, and "Living Fossils of the Deep Sea" by C. P. Idyll with photographs of Spirula and Neopilina galathea. Other articles in this issue will also interest our readers.

(Annual membership in the foundation: $5.00 to the above address.)

SOME NOTES FOR A HISTORY OF CONCHOLOGY IN THE NEW YORK CITY AREA

by M. K. Jacobson

(A compilation of new notes and old items from the NYSC "Notes".)

In 1901 *Viviparus malleatus*, the huge introduced fresh water shell in our area, was being sold in the Chinese market in San Francisco, California. They had been collected in rice fields near Yokohama, Japan and were being sold for "a few cents a quart". The Chinese called them "Tsen law". Shortly thereafter the species was collected alive in streams in nearby San José. Some years later the young William Clench found specimens near Boston. It is not known when it was first seen in our area, but it is now quite common in many nearby ponds and streams. It has been put into the subgenus (or genus, if you like) *Cipangopaludina*.

In 1902 there was a well established colony of the beautiful species *Lymnaea auricularia* in Flatbush, Brooklyn. There is a report on this species in "Science" for July 11, 1902.

Thomas Bland, the famous American malacologist and one of the foremost students of the American land mollusks, who died in 1883, lies buried in the Greenwood Cemetery in Brooklyn.

In 1903 Dr. R. Ellsworth Call, the eminent American authority on river mussels and fresh water shells, was the president of the Section of Conchology of the Brooklyn Institute. Dr. Call's name is attached to some of the most important studies ever undertaken on the rich American naiad fauna.

David Wilson Ferguson, well known collector for whom *Anguispira alternata fergusoni* and *Acmaea testudinalis fergusoni* are named, and whose magnificent collection was bequeathed to Columbia University -- where it apparently came to ruin -- in 1903 lived at 303 Stuyvesant Avenue, Brooklyn.

Maxwell Smith, the well known author of "East Coast Marine Shells" and other shell books was, early in the century, a resident of this area and a member of the Brooklyn Conchological Club.

("Notes" #10, December, 1954): ... Among well known local conchologists we have Silas C. Wheat who used to live at 987 Sterling Place in Brooklyn, editor of the "Bulletin of the Brooklyn Conchological Club" and author of many papers. He published the name *Acmaea testudinalis fergusoni* for our local form of this species. However, Abbott disregards this name in his latest work.

A. H. Gardner in 1891 found a colony of *Stenotrema hirsutum* (the only record of this species for Long Island) "in a small patch of woods ..... at what is now 13th Avenue and 74th Street in Bay Ridge, Brooklyn". We went there a while ago looking for it: found no woods, no lots, no nothing -- just a row of dreary apartment houses.

In 1909 Edwin W. Humphreys published in "Nautilus" 23:10 a list of "Recent Fresh Water Shells from Bronx Boro, New York". These he found in a swamp that used to be between what is now 171st Street and Morris, along a causeway to accommodate Morris Avenue.

("Notes" #12, February, 1955): Sloman Rous, born in England August 3rd, 1838, lived in South Africa where he gained fortune before the Boer War. He was ruined by an embargo on imports set by Boer Government. Transferred to the USA with a valuable collection of shells. Opened a store in Jersey City, then moved it to Brooklyn. He was one of the few dealers who offered Achatina linterae (subspecies of A. zebra), the locality of which is now bare of all shells. During the last five years of his life he was attached to the Conchological Section of the American Museum of Natural History. Wonder if any of our old timers recall this interesting person.

("Notes" #13, March, 1955): Mr. William H. Weeks, the grand old man of all local collectors of shells, whose most impressive collection is housed in 508 Willoughby Avenue in Brooklyn, writes as follows in response to our query . . . "I knew both Dayton and Rous. The Dayton Collection went to the Brooklyn Museum at $1,000. The Rous, to Borkelman of New York City and this went to some Institution. Borkelman lived in Cuba most of his life and married a Cuban girl."

("Notes" #14, April, 1955): John C. Jay, the famous conchologist, used to live at 14 Bond Street in New York City. This little fact we found in a letter written by him and owned by our former president, Dr. Walter H. Jacobs.

THE SEA SORTS ARTIFICIAL SHELLS

In the "New Scientist" of April 29, 1965 (Pub. Cromwell House, London) an item under the above heading reads as follows:

"The action of the waves on the sea shore has the effect of sorting spiral shells according to whether they are right- or left-handed. J. Lever of Amsterdam has been investigating this effect further with the help of the Shell Plastics Laboratory, Delft.

The Laboratory prepared 24,000 artificial shells, in exact imitation of the mollusc shell, and differing in a number of ways. Both left- and right-hand halves of the shell were represented, in three different sizes. Some were drilled with holes simulating the effect of marine snails.

All these factors had some effect on the way the "shells" moved under the influence of the waves, resulting in a physical sorting into types. It is thought that Dr. Lever's work may provide geologists with a means of learning from fossil records something of the motions of prehistoric seas."

THE WINKLES WALK AGAIN

As it is hard to distinguish the species in very juvenile specimens of our local Littorina I thought I might compare their methods of locomotion to help in identification. I watched a L. obtusata move with its foot undulating left-side, right-side. An unidentified, algae-covered juvenile seemed to "walk" in the same manner. A larger L. littorea placed alongside proceeded to jar me by duplicating obtusata's "walk", with the entire left side then the entire right side undulating in forward motion instead of only the front part of the foot as observed for littorea last month. This brought home a lesson I should have remembered: Don't draw conclusions from the observation of only one specimen (it might be dragging its foot!)!

D. Raeihle

NEW YORK SHELL CLUB NOTES No.114 Sept. 1965

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Please notify Corresponding Secretary of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, OCTOBER 10th, 1965, at 2:00 P. M.

PROGRAM: THE BIOLOGY OF PYRAMIDELLID GASTROPODS (with color slides) by Dr. Robert Robertson, Associate Curator of Mollusks, The Academy of Natural Sciences of Philadelphia.

MEXICAN MISCELLANY (with color slides) by Edward F. Cowles, Jr.

SHELL-OF-THE-MONTH (to be announced)

A. M. U. MEETING, 1965

The 31st Annual Meeting of the American Malacological Union was held at Wagner College, on Staten Island, from July 20th to 23rd. Since the New York Shell Club played host to the A. M. U. at this location in 1955, we felt it would be fitting to do so again in '65. Also, out of town delegates (or their families) could visit the World's Fair while in New York.

There were 120 delegates registered at the meeting, among them delegates from Canada, Argentina, India, California and the midwestern States. Florida Shell Clubs and the North Carolina Shell Club were well represented. A number of NYSC members lodged in the dormitories and attended all sessions, while others commuted to Staten Island and attended as many as possible.

Some of the papers presented were on: Nassa (=Iopas), Virginia Maes, A. N. S. P.; Tridacna, Joseph Rosewater, U. S. N. M.; Hipponicidae, J. P. E. Morrison, U. S. N. M.; and Naiids, Carol Stein, Ohio State Museum. The

Bureau of Commercial Fisheries was well represented this year with presentations including Arthur Merrill's "The Surf Clam Fishery", and several technical papers dealing with oyster culture and diseases.

Two of the evenings were devoted to "Shell Club Night" and "Informal Program". Presentations by NYSC members during the evening and regular sessions included: "Nicaraguan Land Snails", Karl Jacobson; "Prunum apicinum", D. Raeihle; "Eleuthera", D. Jensen; "Slides of Living Mollusks", G. Raeihle, and a hilarious presentation by Norman Jensen entitled simply "Position".

On Thursday the Staten Island Institute of Arts and Sciences was host and a delicious luncheon was enjoyed by all. That evening the cocktail party and banquet were held at the Staaten Restaurant. Friday was devoted to an all-day field trip to Sandy Hook, New Jersey, and a visit to the Sandy Hook Marine Laboratory.

To sum up, Dr. Juan J. Parodiz had presided over a very full and successful meeting. It had been a pleasure to work with him during the months of preparation and the days of the sessions.

Next year the North Carolina Shell Club will host the 32nd Annual Meeting of the American Malacological Union (date and place to be announced) under the presidency of Dr. Ralph W. Dexter. Other incoming officers are: Vice-President, Leo G. Hertlein; 2nd Vice-President, Alan J. Kohn; Secretary, Margaret C. Teskey; Treasurer, Mae Dean Richart; Publications Editor, Morris Karl Jacobson; Councillors-at-Large: Mary Kline, Joseph Rosewater, Robert R. Talmadge, Gordon N. Usticke.

Incoming officers of the A. M. U., Pacific Division, are: Chairman, Alan J. Kohn; Vice-Chairman, Victor Loosanoff; Secretary, Mrs. Elsie Marshall; Treasurer, Col. Harvey A. Johnson.

. . . WILLIAM E. OLD

IT'S ALL IN THE POINT OF VIEW

In a recent episode of the TV series "The Munsters" the scene was set in a museum and the director was berating an underling with, "You are being demoted. From now on you are nothing but curator of the collection of sea shells!" What effect this gem had on the general listening public is unknown. To a sheller, being curator of shells would be a fate compared to tossing Br'er Rabbit into the briar patch!

. . . W. E. OLD

PUBLICATIONS:

THE COWRY, Vol. I, No. 8

This issue, dated August 1st, 1965, completes Volume I. It contains, among others, articles on Cypraea turdus by Dr. Schilder, Cypraea saulae by W. Cernohosky, and a paper on the "Genera of Living Cypraea" by the same author. No. 8 (as well as a few back issues) available from Bill Old at 85¢ each.

The editor, Lt. Col. R. J. Griffiths, states "that the magazine should last so long was an optimistic hope rather than a firm expectation in 1960 when No. 1 was published. THE COWRY pays its way without subsidies; it is one of the few magazines and periodicals on malacology to do so."

Col. Griffiths now resides in Australia and operates the Sea Acres Sanctuary in New South Wales. He takes time away from his lyre birds, koalas and wombats to edit THE COWRY. He receives our vote of thanks for both well-done jobs.

WEO

DR. PILSBRY'S FIRST SHELL PAPER

by Morris K. Jacobson

Undoubtedly the most prominent American name attached to Malacology is that of the late Dr. Henry Augustus Pilsbry of the Academy of Natural Sciences of Philadelphia (1862-1958). A long lifetime devoted to the science has resulted in a truly staggering amount of work, in the elucidation of basic malacological concepts as well as the description of new genera and species, anatomical and radular studies, new zoogeographical concepts, etc., etc. In 1940 the American Malacological Union published a list of the SCIENTIFIC CONTRIBUTIONS MADE BY DR. PILSBRY FROM 1882 TO 1939, which contained, as is stated in the introduction, the names of 986 publications in 58 years, or about 18 titles per year.

In 1962 Drs. Clench and Turner, of the Museum of Comparative Zoology in Cambridge, published a 200 page pamphlet of the new names introduced by H. A. Pilsbry in the fields of Mollusca and Crustacea. (Parenthetically it should be added that Pilsbry also wrote on barnacles.) Here we find no fewer that 5,680 new names (genera, subgenera, families, species, and subspecies, and a grand total of 1151 scientific titles prepared in one lifetime. These titles include such things as short, even one page, descriptions of new species through bulkier works of the same nature right up to multi-volumed monographs like the LAND MOLLUSCA OF NORTH AMERICA (4 parts) and the MANUAL OF CONCHOLOGY (series 2) in more than 20 tomes. The authors of the compilation ruefully confessed later that they had missed some 300 species names more. I have not made a thorough investigation, but I doubt that any zoologist in history has quite as much detailed work to his credit.

Through the generosity of Dr. Charles B. Wurtz of Philadelphia, one of the present editors of the NAUTILUS, the periodical founded by Dr. Pilsbry and conducted by him until his death, I came into possession of a copy of Pilsbry's very first paper on malacology. It is a small, folded sheet of 4 pages (2 leaves), 5½ by 3 inches and is entitled:

List
of
Land and Fresh-Water
Mollusca
found at
Iowa City, Iowa

by H. A. Pilsbry, October, 1882

It was published privately by the 20 year old naturalist to solicit exchanges. The list contains exactly one hundred names, consisting of 34 land shells and 66 fresh water, of which 33 are naiads. The names are arranged, as the author tells us, in the system of W. G. Binney for land mollusks, and Binney, Prime, and Tryon for fresh water shells. Large river mussels and tiny land shells like Punctum pigmaeum (actually P. minutissimum Lea) are listed as well as respectably sized land shells and even slugs. Many of the species names have been changed in the 80 years or so since the list was published. The most interesting shell listed is perhaps the helicinid Hendersonia occulta Say, the only operculate land mollusk north of Florida and Texas. Like the first small risings of a mountain from a plain, the first layer of bricks in a skyscraper, or the first step in a thousand-mile journey -- this modest little piece

of printing represents much more than catches the naked eye.

One last item may prove of interest. On page 5 of the SCIENTIFIC CONTRIBUTIONS etc. published by the A. M. U., there is a footnote to the effect that Dr. Pilsbry's works from 1882 to 1887 were signed "Harry A. Pilsbry". However, in this his firstling, published in 1882, the name appears as merely "H. A. Pilsbry". From 1889 on, the name "Henry A. Pilsbry" was employed.

Foreword: The New York Shell Club is indebted to the American Littoral Society for the copy of "Shelling in the Sea of Cortez" now in our club library, and for the following review written for their publication, "The Underwater Naturalist".

SHELLING IN THE SEA OF CORTEZ

by Paul E. Violette. 96 pages. 6 x 9". Issued Dec. 28, 1964. Dale Stuart King, publisher.

While there are other shell books on this area, they are intended for the advanced collector or student. This present work is definitely slanted for the neophyte collector visiting the Sonoran coast of West Mexico. It is a comprehensive guide to the intertidal mollusks (and invertebrates) of the northern Gulf of California, and of the Guaymas area in particular.

The work is profusely illustrated with over 215 line drawings by C. Randolph McKusick. The book contains a great deal of information: notes on habitat, shell lore and anecdotal material as well as descriptive text. There are, in addition, sections headed as follows: "Reflections while shelling", "Clam Fiesta", "Night shelling", "Snorkeling", "Mud Shelling", as well as "Mollusca vs. Homo sapiens", and "The Goof".

The book does not follow any particular arrangement or classification. Bivalves, gastropods and echinoderms follow one another in potpourri fashion. Most shells are identified by their Latin names. However, when a common name is given, the scientific name of that species is not mentioned in the text, but the Latin names can be found in the index.

SHELLING IN THE SEA OF CORTEZ can be ordered from Dale Stuart King, Publisher, Six Shooter Gulch, Rt. 4, Box 865, Tucson, Arizona 85704. Price: clothbound, $3.00; card cover, $1.50.

. . . WILLIAM E. OLD

EXHIBIT

In the large entrance hall of the Staten Island Institute of Arts and Sciences are special molluscan exhibits which will be on display until about the middle of November, 1965. Several contain material lent by New York Shell Club members, all were arranged by staff members of the museum under the guidance of their Curator of Natural Science, Mathilde Weingartner. We hope that some of you can get over to see and enjoy these special exhibits. The Museum is located at 75 Stuyvesant Place, St. George (a few blocks west of the ferry). Hours: Saturday from 10 to 5; Sunday afternoon 2 to 5.

AUCTION

The New York Shell Club is planning an auction of shells and related items to be held Sunday, April 17, 1966. Again the Jensens have generously donated the use of their studio. We'll give details as they develop. Meanwhile -- save those "extra" specimens for the auction!

ARTICLES ON SHELLS AND MARINE LIFE IN NATIONAL GEOGRAPHIC

Many of our members, especially the duffers such as the undersigned, have found a great deal of aesthetic enjoyment as well as help in identification, in articles of the National Geographic, especially in the clear, beautiful illustrations. With the purpose of aiding my comrades in ignorance, I have prepared the following list of articles which deal either with shells or with related subjects of interest such as seashore life and underwater exploration. Copies of this periodical are easily available in many used book and thrift stores. I hope that other members will find the list helpful.

YEAR	MONTH	TOPIC
1913	March	Oysters: The World's Most Valuable Water Crop
1932	Dec.	A Wonderer Under Sea (color illustration)
1934	June	Castle Builders of Tropic Seas (coral)
1935	Aug.	Marauders of the Sea (Cephalopods in color)
1936	Aug.	Life of the Sea Shore
1937	Feb.	Denizens of Our Warm Atlantic Waters (life of Gulf Stream and West Indies)
1937	Nov.	Pearl Fishing
1938	Sept.	On the Bottom of a South Sea Pearl Lagoon (diving for pearl shell)
1940	June	Where Nature Runs Riot (Life of Great Barrier Reef)
1949	July	* Shells Take You Over World Horizons
1952	Feb.	Man-of-War (color photos of marine life)
1952	July	Strange Babies of the Sea (study of plankton)
1952	Oct.	Fish Men Explore a New World Undersea (aqualung in Red Sea)
1955	March	* X-Rays Reveal the Inner Beauty of Shells
1955	June	Glass Menageries of the Sea (Jellyfish and other marine life)
1956	March	Fossils Lift the Veil of Time
1956	Oct.	Shipworms (the combat against destructive wood-boring Teredos)
1957	Jan.	On Australia's Coral Ramparts (photos of coral, shells, etc. of Great Barrier Reef)
1959	Jan.	Little Horses of the Sea (includes text and photos re shelling on Sanibel)
1959	Oct.	Hawaii's Coral Reefs
1961	Feb.	How the Sun Gives Life to the Sea
1961	Nov.	Oregon's Sidewalk on the Sea (seashore life)
1962	Jan.	Key Largo Reef (2 articles on first U. S. undersea park)
1962	April	Twenty Fathoms Down (pearl-shell diving)
1965	March	* Florida Tree Snails

* Outstanding article.

. . . JOE GOLDEN

Editor's note: While you are in the used-book store you might be on the look-out for the out of print "A Naturalist at the Seashore" by William Crowder (The Century Co., 1928). General observations of marine life of Long Island Sound in rather "dated" prose with few mollusks mentioned, but, overall, an interesting account by an inquisitive collector.

dr

WORKING WITH RADULAE

At the June meeting Fred Tobleman emphasized the importance of radulae as a means of species identification, and went on to demonstrate that this study is not beyond the scope of the amateur. For reference he suggested two books: "The Microscope" by Jabez Hogg, 12 ed. 1887, and Vol. III of "Cambridge Natural History".

Mr. Tobleman described how by dissection the radula is extracted and revealed as a band or ribbon of varying length and breadth, generally silvery-white in tone but not always so. It is found in the buccal mass, enveloped in a kind of membrane in the floor of the mouth, or contained within a proboscis -- varying in exact position as well as pattern according to the genera. His presentation was thorough, with a display of the equipment (scalpel or knife, needles, tweezers, brush, porcelain casseroles, slides etc.) for each step as he described technique. He spoke from years of experience in this delicate work and described how, to get perfect results, he painstakingly compounds his own mounting medium.

Mr. Tobleman's display included a 10-power glass in a focusing mount, and several of his slides. This selection of stained and beautifully mounted radulae included that of a Mediterranean octopus. The great variation to be seen from one specimen to another made it clear how the radula serves as an important identification feature.

"SHELLS -- AND BEAUTY BY THE WAY"

Alice Denison Barlow"s color slide presentation last June was well titled. Her fine photographs were a travelogue of Sanibel which included many of its most photogenic shells and brought back memories to all who had collected there. She followed this with photos of a selection of world-wide shells from her collection then climaxed the presentation with pictures of caricatures-in-shell which she herself had conceived and assembled.

F. KNIGHT HADLEY

F. Knight Hadley, aged 75, died in his sleep on July 24th. Mr. Hadley had been hospitalized and was convalescing at home. He is survived by his wife, Esther, two sons, and several grandchildren.

Mr. and Mrs. Hadley have been prominently engaged in the shell business in West Newton, Massachusetts, since the early 1940's.

Mrs. Hadley will continue the shell business.

. . . Ruth A. Craine

WELCOME TO OUR NEW MEMBERS -

Mr. & Mrs. E. F. Ford, 2100 S. Ocean Dr., Fort Lauderdale, Fla. 33316
Mrs. Helen Garlinghouse, 327 Roxbury Rd., Garden City So., N. Y. 11530
Mr. & Mrs. L. E. Heist, 1633 Mt. Eagle Place, Alexandria, Virginia
Mrs. Edwin S. Hicks, 7170 Lucky Dr. West, Jacksonville, Fla. 32208
Mrs. Eleanor Spring Landry, Box 342, A.P.O. San Francisco, Cal. 96555
Mrs. Frances M. Lichtenberger, 340 Dunellen Ave., Dunellen, New Jersey
Miss Kathleen O'Leary, 688 Baldwin Ave., Baldwin, New York 11510
Capt. Achilles Papavassiliou, Nikitara 23, Athens (T.452), Greece
Mr. Robert Remmert, 1092 Logan Road, Wantagh, New York 11794
Mrs. L. G. Whiton, P. O. Box 731, Sparta, New Jersey

ADDITIONAL DATA ON OUR LOCAL FAUNA

Observations at Rockland Lake, N. Y.

by Harold S. Feinberg

On July 10, 1965, with our friends the Taxsons, we spent a few hours at Rockland Lake State Park, Rockland County, New York, to escape ths summer's heat. Due to the drought, the level of the lake was down and the exposed muddy shore was covered with dead and dying mollusks. The largest and most obvious snail present was *Viviparus contectoides* Binney. In 1962 Clench and Turner placed this shell in the species *Viviparus georgianus* Lea.

By far the most important find was *Helisoma campanulatum* (Say). Most literature lists this snail as living from about central New York State northward and westward. None of the older faunal lists records this species as living this far south. F. C. Baker described a Pleistocene fossil from White Pond, Marlsboro, Warren County, New Jersey which he named *Helisoma campanulatum pleistocenicum*. However, in our collection are two lots of live-collected *H. campanulatum* from New Jersey: the first is from Lake Hopatcong, Arlington, Morris County, Leg. S. D. Freed and the second from Blairstown, Warren County, Leg. E. J. Karlin. It is obvious that we have an important range extension of this species. As *campanulatum* is easily determined by its swollen, bell-shaped aperture (in adults only), others should be on the look-out for it.

A second interesting find at Rockland Lake was large numbers of *Valvata tricarinata* (Say). This is a pretty little operculate, greenish-white with three prominent keels of the body whorl. Other fresh-water shells collected at this location were *Amnicola limosa* Say, *Campeloma decisum* Say, *Lymnaea palustris elodes* Say, and of course *Physa heterostropha* Say. We also found fragments of two species of naiads, namely *Anodonta cataracta* Say and *Elliptio complanatus* Dillwyn. Both of these clams probably live in the deeper water of the lake.

Under the wet debris were three species of "water-loving" land snails. The first of this group is the slug, *Deroceras reticulatum* (Müller). The second species is *Zonitoides nitidus* Müller with its almost black body which helps to distinguish it from the commoner *Z. arboreus* Say. (The latter species prefers a drier place to live.)

The third land snail belongs to the family *Succineidae* and we really don't know what name or names correctly apply. Jacobson and Emerson ("Shells of the New York City Area", p. 11) refer all local higher-spired forms of this family to *Succinea avara* Say with the explanation: "that many of the specimens identified as *S. avara* are actually another species entirely". Although several shells were collected, due to the fragile nature of the shell we "rescued" only two. One shell has the beautiful golden color of *Succinea aurea* Lea; the second shell meets the description of *Oxyloma decampi gouldi* Pilsbry. Without an examination of the soft parts we go along with Jacobson and Emerson and will tentatively lump these two shells in the species *Succinea avara* Say.

The object of this trip was to find the pearl-bearing mussel, *Margaritifera margaritifera* Linné. We didn't find any, so I guess our day will have to be called a failure.

* * *

(Because of continuing drought, the lakes are even lower than in July. Do any of our members have additional local records of *H. campanulatum*?) (Ed.)

CHAETOPLEURA APICULATA Say

A Shell-of-the-Month presentation by George Raeihle

The size of Chaetopleura apiculata Say, the Common Eastern Chiton, or [illegible] Chiton, is reported to one inch, its range from Massachusetts to Florida, 1 to 15 fathoms. In spite of the designation as "Common", it is not commonly found by shellers in the New York area -- personally, I know of fewer than ten specimens collected locally in the last ten years, all from eastern Long Island and usually juvenile. So when Harold Feinberg found two specimens at Orient last June 26th, both of a size to be considered mature, it was really something to shout about! Both had greenish-blue markings generally associated with only the southern specimens (Abbott's "American Seashells"). The girdles were beautifully striped with light beige and brown. The larger one measures 21 mm. as a dried specimen, the smaller measures 18 mm. as it rests on the wall of the aquarium and stretches to a good 20 mm. when in motion.

The two specimens were on exhibit at the September meeting and, in addition, color slides of both a cabinet specimen and the living mollusk gave everyone a really close-up view. George told of his experience in photographing the living chiton -- he had supposed it to be quite sedentary, but it was so active as it persisted in moving to the underside of its stone that he had to use electronic flash to stop motion.

The chiton was just as active while on exhibit during intermission when, to show it, its stone was turned so many times that it became rather like a treadmill. After a while of this the chiton lifted its forward end, reached, found a close-by stone and transferred to it, demonstrating first a "back-bend" during the bridging of the gap then a sideways movement as the faster way to the underside of the new stone. Chitons can move backward, too -- but this was not demonstrated at the club meeting.

One of our members asked if Chitons were related to Trilobites. There is a resemblance between the arrangement of a chiton's plates and the laterally sectioned exoskeleton of a trilobite, but there it ends. Trilobites were crustaceans, numerous in the Cambrian, disappearing with the Permian, whereas chitons, first appearing in the Upper Cambrian (about 500,000,000 years ago), survived the ages and are now more numerous in species than ever before.

The Chaetopleura seems to continue to do well in an aerated, sea water aquarium which also contains other species. It feed on fine marine algae found on stones at our local collecting sites.

. . Dorothy Raeihle

NEW YORK SHELL CLUB NOTES No.115 Oct.1965

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ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, NOVEMBER 14th, 1965, at 2:00 P. M.

PROGRAM: LITTORINIDAE FOR THE BEGINNER
by Marian M. Schroth

JOURNEY INTO NATURE, Episode of September 5th featuring William E. Old, taped by Norman Jensen

POSITIONS (color slides)
by Norman Jensen

SHELL-OF-THE-MONTH (to be announced)

* EXCEPTION TO SCHEDULE: The April, 1966 meeting will not be held at the Museum. Instead, plans have been initiated for a "Shell-Social" to be held Sunday, April 17th. Mr. and Mrs. Norman Jensen have generously offered the facilities of the Broadway Dance Studio, Astoria, for the affair. We're looking forward to the New York Shell Club's first party!

FLORIDA LEGISLATURE RESTRICTS COLLECTING OF STROMBUS GIGAS

We learn from South Florida Shell Club's publication "The Mollusk-Chaser" of July, 1965, that "President Durfey has been in contact with the conservation men on the recent legislation passed by the Florida Legislature on the taking of Strombus gigas (Queen Conch). It appears that they can now only be taken for food; anyone taking them for other purposes is subject to a $500 fine and imprisonment." A further note in their September, 1965, issue: "... One of our members was stopped by conservation men and warned that they were required to eat the meat of the couple of Strombs they collected while out in their private boat."

DR. ROBERT ROBERTSON VISITS NEW YORK SHELL CLUB

Dr. Robert Robertson, Associate Curator of Mollusks of the Academy of Natural Sciences of Philadelphia, was guest speaker at our meeting of October 10th. His presentation, "The Biology of Pyramidellid Gastropods", was a most complete study and it was a pleasure to follow as Dr. Robertson made each step clear through the life cycle.

Too detailed for anyone except the speaker to report properly, we can only offer sympathy to those who were not able to be present, recording here only a few notes:

The Pyramidellidae are now definitely placed in Opisthobranchia. All are parasites, feeding on the haemofluid, or "blood", of the host animal -- gastropod, bivalve, worm or etc. Some pyramidellid species seem to have preferences and have been so reported, but meticulous observation reveals that this may be just a case of availability as they will feed on a much greater variety of hosts than previously realized.

This class of mollusks has no radula. A drawing of the cross-section of _Odostomia_'s proboscis showed instead a hollow, cylindrical, tapering stylet with the small end at the mouth of the animal, and the mouth surrounded by a suction cup. The stylet punctures the skin of the host whose body fluids are then pumped through to the digestive tract of the parasite. Whether or not the parasite might in some instances kill its host was discussed but not resolved.

The tentacles also are unique -- they are rather flat (instead of being cylindrical) and function as gills.

Once a year eggs are laid in a jelly mass -- a drawing showed how the eggs within the mass were on a connecting "string" rather than being free to turn as they developed.

Dr. Robertson showed us how the species can be sorted as to the manner of their early development by examination of the shell: Those species with tipped apex have pelagic larvae; the young of the species whose shell is _not_ tipped at the apex have _no_ pelagic stage. Drawings of the early whorls and the living young illustrated the lesson.

Dr. Robertson concluded with a bibliography in word and picture, listing Pelseneer, Ankel, Thorson, Fretter and Graham, Cuvier -- noting the category in which each had contributed to the just presented study of pyramidellid gastropods, a study that had been five years in the making.

dr

THE FASCINATION IS AGELESS

An item from "Tass", as reported in "Le Courrier Industriel et Scientifique", Brussels, issue of September 1965, reads in part (our translation):

During the course of excavating an encampment of Cro-Magnon man at Samarkand, workers discovered an ornament which was worn by this man of about 40,000 years ago. It is a shell, pierced intentionally to serve as an adornment. Scholars think that the shell might have come from the Central Asian coast of the Indian Ocean, by means of barter between tribes.

(Samarkand is close to 1,000 miles inland from the present-day coast line of the Arabian Sea at Hyderabad. -- Ed.)

dr

BOOKS FROM JAPAN ON MOLLUSKS

by Anthony D'Attilio

The increasing numbers and growing awareness of Japanese collectors and students of Mollusca is reflected by the flow of literature on this subject coming from Japan, principally in the form of beautifully illustrated books with most or all plates in color. The earliest of these popular books of general interest was "A Handbook of Illustrated Shells" by Shintaro Hirase, an octave volume published in 1934. A revision by I. Taki was published in 1951. Since then these also have been published:

"Shells of the Western Pacific in Colour", T. Kira, 1954. Octavo.
"Shells of the Western Pacific in Colour", T. Kira, 1962. Quarto.
(The 1954 Kira volume is entirely in Japanese. The 1962 edition is an all-English edition with some additional plates in color.)
"Coloured Illustrations of the Shells of Japan (2)", T. Habe, 1961, Octavo.
"Selected Shells of the World", T. Shikama & M. Horikoshi, 1963, Vol. 1, Quarto.
"Selected Shells of the World", T. Shikama, 1964, Vol. 2, Quarto.

Although the above list does not by any means constitute the entire output from Japan, it comprises those books of most popular interest and availability to Westerners.

Now before me is the latest volume to come to my attention. The authors are T. Habe and K. Ito. The book is titled "Shells of the World in Colour, Volume 1, The Northern Pacific". Except for the Latin names and index it is written entirely in Japanese. The volume is octave with 176 pages and 56 plates, not all of which are in color. The printing is of the same high quality that we have come to expect from Japan. The authors have quoted from H. A. Pilsbry the following lines, which I can't help but repeat here:

> "A picture can be a perfectly satisfactory definition.
> In fact, it is usually better than a dozen lines of Latin."

In this volume all classes of mollusks found in the northern Pacific are treated. The geographic area covered includes both the eastern and western shores of the Pacific Ocean starting just north of Japan midway, and extending as far north as the Aleutian Islands. Nineteen new Taxa of specific or subspecific category and three new generic names are proposed. The family Buccinidae, which contains the most notable, large shells found in northern waters, is extensively covered; ten of the new species names and all of the new generic names are to be found in this family.

Taken as a whole, this volume constitutes a most important contribution to our knowledge of the mollusks of the northern Pacific. The lack of descriptions of the new species in a Western language is a considerable drawback for non-Japanese students, nonetheless the presence of new names makes the book indispensable for all public and private libraries.

The volume of "Shells of the World in Colour, Vol. 1, The Northern Pacific" and here reviewed was received through the kindness of Dr. Habe.

The publisher's name and address: Hoikusha
20. 1-Chome, Uchikyohoji-Machi
Higashiku, Osaka
Japan

The price is not known to this writer.

ANNOUNCEMENT: The Naples (Florida) Shell Club will hold a Shell Show the weekend of February 20, 21 and 22, 1966.

CARIBBEAN SHELLING

by Ethelyn Woodlock

My third trip to St. John netted 43 new species, raising the total for three weeks' shelling to the 235 mark. A Bimini check list has not been prepared as it would be very much the same as for St. John, except that the list would not be as long.

On Bimini the natives told us how to clean the *Cassis flammea*. Suspend them with the siphonal opening down, the shell held between anything handy and high enough so that the animal cannot reach to the ground. Overnight the creature will crawl out and its weight will cause it to drop from the shell. I dug some of these on North Bimini but hours later, with a plane ride intervening, they were too inactive for this procedure -- they must be fresh out of the water. Four weeks later the maggots were still eating out the animal, and I simply HATE maggots! A real granddaddy *Cassis* from St. John proved the point of cleaning: It was suspended (between cement blocks) at noon, twelve hours later it was dead. I pulled. The next morning the liver flushed out with the hose. It was a beautifully clean shell -- and with no troubles with fish, ants OR maggots!

Do NOT hang or suspend *Strombus gigas*. Merely run hot tap water into the shell for two or three minutes and soak it overnight in the tap water. The next morning the whole animal will roll out easily, intact. How many of these have I, in the past, had "cooked out" by the natives!! But they save the meat for chowder, which is delicious. So are conch fritters!

We cruised around many islands near St. John which are British and, though one is not allowed to land, we snorkeled in the bay at Big Jost Van Dyke and found the largest *Murex* with the longest spines (*brevifrons*) that I have ever seen. It was in about five feet of water with a grassy bottom.

One tiny, remote island called Green Key is now my dream spot -- it has sand around three sides and rocks the rest of the way. I swam ashore with my glasses wrapped in plastic which did not keep them dry. There I was, with nothing to wipe the salty glasses -- and what a sight for blurry eyes! The island was loaded, on all four sides! So were the rocks. Here I found my first *Turbo canaliculatum*. Tongue in cheek? No, on glasses, and they finally dried enough so I could see the wee ones.

One day we cruised around to East End where I ate goat stew and other gourmet delights but there was no beach, only rocks. The long-spined urchins were piled at the high tide line and mixed with them were the shells, freshly dead and in pairs. *Chlamys ornata*, *sentis*, *imbricata* and *Lyropecten antillarum*, a large *Phalium granulatum* and many others. I was looking for a huge *Epitonium* usually found there, but no luck. I found a new one which turned out to be the very rare *Cirsotrema dalli* -- and a better specimen than illustrated in Germaine Warmke's book. Fiona St. Clair, who shelled with Germaine Warmke on Puerto Rico for eight years, identified it on the spot.

It was so thrilling to meet Fiona, who is now building on St. John. She is a much more scientific sheller than I, but we talked 'til the wee small hours. One morning we snorkeled at Gallows Point with a high surge running which made diving difficult. Try landing at a given spot eight feet down! I backed up four times, and finally picked up my huge *Astraea phoebia*. The also huge *Astraea tecta* were about four feet down on the

steep shore rocks and I risked coral cuts, urchin jabs and being dashed against the rocks, but I collected many *tecta* and wish I had a few more. We finally gave up fighting that huge surge and crawled ashore.

Fiona said she didn't say anything while we were out there as it might (??!!) have scared me -- but we were being watched! Stalked by a barracuda! It did not bother us, as we were not fishing. By the way, NEVER turn your back on a shark -- so the skin divers say -- FACE him and swim backwards, ready to hit him on the nose or even blow bubbles at him. He is curious, for the most part, as to WHAT you are, and is not going to dash over to gulp you to bits. The most danger is when you break the water surface, but down WITH him he merely looks. I know many professional divers who have been swimming with the best of sharks and all say the same thing, "FACE HIM". A snorkel is good enough for me, at my age, so I do not think I'll ever have to sing to any shark!!

We looked all over North and South Bimini for *Strombus gallus* but all I found was one beach specimen , perfect but white, yet with shine in the interior. But NOW I know they ARE offshore!

There is an island opposite the Lerner fish pens on North Bimini that has miles of mud flats exposed at low tide. Here I had my most fun. I learned that *Strombus raninus* comes all the way up and had never dreamed that I would ever turn over thousands of them to be choosey for coloring. The *costatus* were so beautiful, too. As for *gallus*, only the tip is supposed to show -- so WHY does it act so differently from the other *Strombus*? *Cassis flammea* does not come up at all -- it only makes a bumpy lump in the wet sand and only a small portion of the back is exposed. *Astraea phoebia* were in the grasses next to the water by the millions, not thousands. So much easier picking than diving for them on St. John. Not to mention *Tellina* and many others. What wonderful days!

So many of my *Pyramidella dolabrata* had been given away that this stock was replenished on South Bimini at Sunshine Inn, where we stayed. This lovely little shell can be found washing in the wave at the low tide line. The rocks by the Inn were covered with so many species -- but WATCH your step, as urchins are there, too, in great profusion.

I have been asked to draw maps of my Caribbean shelling spots. The best beaches on St. John seem to be private, so it is of great help to know people who live there.

I now have five *Conus granulatus* from Windswept (private) where shells seem to roll and pile up constantly. Most beaches are, at most times, rather bare. It all depends on the wind, wave and moon. For instance, on Sanibel, during the full moon in January, "they" were really rolling. The tide pools were filled with baby octopussies*(my favorite plural out of seven to choose from) and when these are there, SO are the crawling shells. Four days later the beach was bare again. Shells are where you find them and my fun is in the finding.

(* From further description furnished by Mrs. Woodlock, these "baby" octopussies would seem to be *Octopus joubini* Robson, a small species. See article on page 7 of this issue. -- Ed.)

Below is listed the 43 additional species I found this year to supplement my St. John checklist:

SHELLS COLLECTED AT ST. JOHN, VIRGIN ISLANDS
in addition to those listed in New York Shell Club Notes No^{s} 95 and 106

Anadara notabilis Röding
Barbatia cancellaria Linné
Cantharus auritulus Link
Charonia variegata Lamarck
Chlamys sentis Reeve
Cirsotrema dalli Rehder
Coralliophila caribea Abbott
Diodora arcuata Sowerby
" cayenensis Lamarck
" minuta variegata
Drupa nodulosa C. B. Adams
Euglandia rosea (land)
Fenimorea fucata Reeve *
Glycymeris pectinata Gmelin *
Hemitoma ostheimerae Abbott
Laevicardium pictum Ravenel *
Latirus brevicaudatus Reeve
Lucapina sowerbii Sowerby
Murex brevifrons Lamarck
" recurvirostris rubidus F. C. Baker
Nassarius vibex Say
Nitidella ocellata Gmelin
Nodilittorina tuberculata Menke
Papyridea soleniformis Bruguière
Pinctada radiata margaritifera
Planaxis lineatus Da Costa
Pyramidella dolabrata Linné
Prunum carneum Storer
Pusia albocincta C. B. Adams
" pulchella Reeve
Semele purpurascens Gmelin *
Serpulorbis riisei Morch
Strigilla pisiformis Linné
Stigmaulax sulcata Born *
Tegula lividomaculata C. B. Adams
Thais haemastoma floridana Conrad
Trachycardium magnum Linné
Triphora melanura C. B. Adams
Trivia antillarum Schilder
" leucosphaera Schilder
" pediculus Linné
Turbo canaliculatus Hermann
Vermicularia knorri Deshayes

(* found and given to me by Fiona St. Clair)

. . . Ethelyn Woodlock

THE NAIADS OF NEW YORK CITY

Dr. N. M. Grier in 1923 (NAUTILUS 37:95) and in 1926 (ibid. 40:89) and elsewhere commented on the naiads (fresh water mussels) that occur in Long Island. Within the limits of the city itself he reported the following: Anodonta implicata Say in Prospect Park Lake, Brooklyn, and in Baisley's Pond, south of Jamaica; Anodonta cataracta Say in Kissena Lake, Flushing. The latter has also been found (at least fragments) in Alley Pond, Queens, and in the lake at 72nd Street in Central Park, Manhattan.

The writer received the following letter from Mr. Harry Fertik of Bayside, Queens: "Today (September 6th, 1965) I found alive at Alley Pond an excellent specimen of Anodonta cataracta. It was almost completely buried in black mud which, because of the drought, is now just barely damp. Normally it could not have been collected without wading into water more than a foot deep. Today I walked out to where it lay just barely submerged and took the specimen hardly getting my shoes wet."

This also serves to remind us that even so serious a matter as the present lack of rain is not without its benefits. The consequent low stage of lake and pond and river provides a splendid opportunity to get to these areas and see what is now to be gotten.

. . . Morris K. Jacobson

The following article appeared in the July-August, 1965, issue of SEA SECRETS, a publication of The International Oceanographic Foundation, 1 Rickenbacker Causeway, Virginia Key, Miami, Florida 33149:

FLORIDA OCTOPUS BITE

Foundation member Edward A. Schumann, M. D., recently reported a painful encounter with an octopus. Since there are few documented reports on the toxicity of salivary secretions of octopuses found in the western Atlantic, Dr. Schumann's letter is quoted here at length: "A small common octopus (Octopus joubini) is occasionally washed ashore in considerable numbers on the Sanibel Island, Florida, beaches and shell collectors are wont to toss them back into the sea to save them from dying in the sun.

"Wishing to preserve a specimen of this octopus for later study, I placed one in a pail of sea water and later transferred it to a jar of preservative fluid. During the transfer, the creature bit me on the middle finger. The bite was sharp and there was a little bleeding, amounting to several drops of blood.

"Almost immediately there developed the most excruciating pain which rapidly became almost intolerable. In a few hours the finger was greatly swollen, indurated and hard and deep red in color. By next morning the entire hand was swollen, red and very painful. After a few days there occurred some little discharge of a white, sticky fluid, not pus, from the site of the bite, which ceased after two days. The swelling and induration gradually subsided until now, two months later, there remains only a slight induration of the terminal phalanx and several enlarged lymph nodes in the elbow and axilla. There was never any evidence of bacterial invasion or infection, only an extreme degree of cellulitus.

"There were no systemic reactions except for a mild elevation of temperature for several days.

"Treatment consisted of immediate alcohol dressing to the wound, antihistamine and penicillin internally and frequent soaking in epsom salt solution.

"I was greatly alarmed by this occurrence, being aware of the lethal properties of the octopus's molluscan relatives, the venomous cones, and by the lack of information available at the time concerning the nature of octopus venom. Later learned that the octopus, upon biting its prey (usually small crabs or fishes), injects a venom secreted by its salivary glands to kill the victim and with this a digestive fluid to break up the tissues so that the softened material may be sucked into the octopus's small mouth.

"There is one report of a death from an octopus bite, that of a man who was bitten on the neck and died a few hours later apparently from the effects of neurotoxin.* The above case is reported at the suggestion of Dr. R. Tucker Abbott, who felt that it should be recorded both by reason of its unusualness and a warning that these apparently innocuous little creatures may not be handled with impunity."

* * *

Alice Barlow was more fortunate than Dr. Schumann. While visiting the west coast of Florida a tiny octopus nipper her as she held it on her extended left hand while attempting to get its photograph. She reported

subsequent soreness and swelling "of about the size of a dime" in her left palm, but suffered no long term effects.

Another incident, recorded in Frank Lane's "Kingdom of the Octopus" (Sheridan House, 1962) was that of a tiny octopus, of only 1" span, that crawled from a Laevicardium shell collected in a tide pool at Biscayne Key. The bite on the knuckle was described as like "being stuck with a hot pin" and, though not serious, left an annoying itch for about a month.

In the "Hawaiian Shell News" of June, 1963, Cliff Weaver tells, in an article headed "Tiny Hawaiian Octopus Has Toxic Bite", of being painfully bitten on two occasions by tiny octopuses which were occupying empty Terebra maculata shells. He watched for and collected a third specimen, "no bigger than a 25-cent piece", which he sent to the Smithsonian for study. He did not report as to whether or not there were any ill effects from the bites, though his title seems to indicate a reaction.

*The fatal case referred to in Dr. Schumann's report is described in some detail in Chapter 11 of Frank Lane's "Kingdom of the Octopus" (Sheridan House, 1962). Briefly: Two young men, members of the Arufura Skindivers' Club, had been handling "a blue octopus, spanning about six inches.... Both men had handled such octopuses before without any ill effects." One was bitten, the wound a small puncture that bled little; the young man died in Darwin Hospital less than two hours after being bitten. Dr. Donald F. McMichael, Curator of Molluscs of the Australian Museum in Sydney, studying another specimen supposedly identical with the venomous animal, identifies the genus as Hapalochlaena and notes that "the specimen seems to fit with the description of H. lunulata Quoy and Gaimard, which was described from New Ireland, and which ranges along the North-West coast of Australia and into the islands to the North. The genus Hapalochlaena Robson, as at present known, includes only the two species, lunulata Q. and G., and maculata Hoyle, both of which are now known to inflict venomous bites...." (Dr. McMichael's report appears in "The Journal of the Malacological Society of Australia", No. 8, December 1964, pp 23-24.)

* * *

In all but one of the cases cited above, the animal was being permitted to crawl over the skin of the collector.

We have read that a suggested method of handling is by choking -- grasping firmly around the "neck", that area of the octopus where head and web meet. Needless to say, caution and gloves are at all times recommended.

dr

THE KATSARAS AUCTION

September signaled the resumption of New York Shell Club meetings and, of course, another of Nick Katsaras' shell auctions. The room at the National Arts Club at Gramercy Park was filled to capacity September 19th with those who came to see the choice items Nick had to offer this year. Dealers and collectors from far and wide attended, as Nick always manages to offer the rare and unusual. Tony D'Attilio, again acting as auctioneer, kept the proceedings moving at a rapid pace. Some spirited bidding contests added a bit of excitement to the day, especially for such shells as Conus abbas, Conus sculletti, Cassis tenuis, Voluta priamus, Voluta gouldiana and, for cowry lovers, Cypraea vercoi and Cypraea venusta.

The auction ended shortly before 6:30 P. M. Nick's only bit of advice during the afternoon had been "Stop being friendly and start bidding!"

. . . Dorothy Jensen

NEW YORK SHELL CLUB NOTES No.116 Nov.1965

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Please notify Corresponding Secretary of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd*Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, DECEMBER 12th, 1965, at 2:00 P. M.

PROGRAM: SHELLING IN HAWAII (with color slides)
by Mr. and Mrs. Neal Seaman

OBSERVATIONS OF CAPTIVE PRUNUM APICINUM (with slides)
by Dorothy Raeihle

SHELL-OF-THE-MONTH (to be announced)

---

*EXCEPTION TO SCHEDULE: Our April, 1966, meeting will not be held at the Museum. Instead, our first NYSC party (with lots of shells) will be held on April 17th in the main room of the Broadway Dance Studio, Astoria.

PLEASE NOTE: As there is a possibility that your December NOTES might be late in reaching you because of the holidays, we'll remind you now that the first meeting of the new year will be held on

SUNDAY, JANUARY 9th, 1966, at 2:00 P. M.

We're sure you will enjoy the program now being planned. Circle the date on your calendar!

OUR LIBRARY is growing nicely, and Mrs. Feinberg has done a tremendous amount of work in organizing it. . . A supplementary list of additions will be forthcoming shortly.

PUBLICATIONS:

PHILADELPHIA ACADEMY MOLLUSK SEPARATES

The Academy of Natural Sciences (19th and The Parkway, Philadelphia, Penna. 19103) is clearing its attic of mollusk separates published in its Proceedings. They are being sold at very low prices in order only to pay for handling, wrapping and mailing. Make check to the "Academy of Natural Sciences" and send to the Department of Mollusks. On orders under $1.00 send payment in stamps. Complete sets $5.00 (original price $16.00).

1958	Abbott . .	The Gastropod Genus *Assiminea* in the Philippines. vol. 110, 65 pp., 10 pl.	50¢
1956	Orr . . .	The South African Gastropod Genus *Burnupena* (Buccinidae). vol. 108, 14 pp., 2 pl.	25¢
1956	Olsson . .	Studies on the genus *Olivella*. 70 pp., 8 pl.	$1.00
1955	McGinty .	New Marine Mollusks from Florida (Mitras, Turrids, etc.) vol. 107, 10 pp., 2 pl.	25¢
1952	Pilsbry and Olsson . .	Vitrinellidae and Similar Gastropods of the Panamic Province. Pt. 2, 53 pp., 12 pl.	75¢
1941	Pilsbry and Olsson . .	A Pliocene Fauna from Western Ecuador. vol. 93, 79 pp., 19 pl.	50¢
1962	Moore, Ellen . .	Conrad's Cenozoic Fossil Marine Mollusk Types.. vol. 114, 97 pp.	75¢
1964	Robertson . .	Dispersal and Wastage of Larval *Philippia krebsii* in N. Atlantic. vol. 116, 27 pp., illus.	50¢
1933	Pilsbry and Harbison . .	Notes on the Miocene of Southern New Jersey. vol. 85, 13 pp., 3 pl.	25¢
1940	Berry, C. T. . .	Some Fossil Amphineura....Atlantic. 13 pp., 4 pl.	25¢
1938	Schwengel . .	Zool. Results......Galapagos Mollusks. vol. 90, 3 pp., 3 fig.	25¢

THERE IS A LIMITED NUMBER OF SETS

ADDITIONAL ARTICLES ON MARINE LIFE IN "NATIONAL GEOGRAPHIC"

March	1941	a) Report from Oceania b) Fighting Giant Squid of the Humboldt Current
November	1953	Fishing in the Whirlpool of Charybdis (photos of *Pterotrachea* and odd fish)
March	1954	Night Life in the Gulf Stream (Fish, and color photo of live orange marginella.

. . . Irving Podell

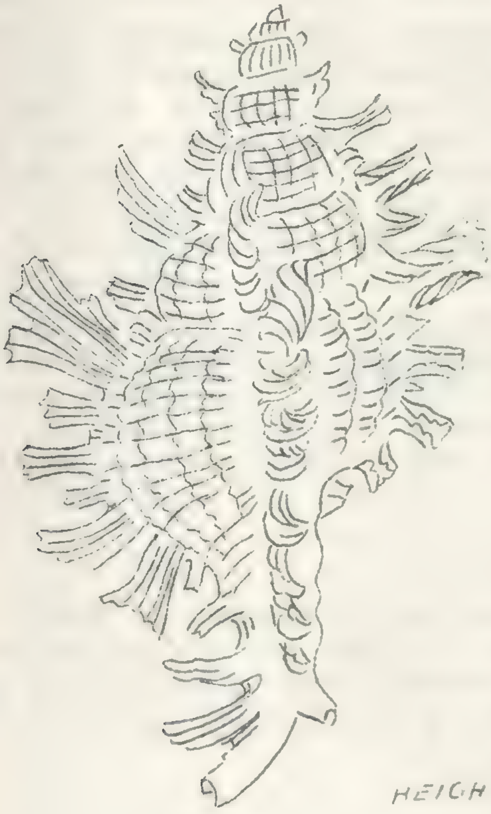
(See list in NOTES No. 114)

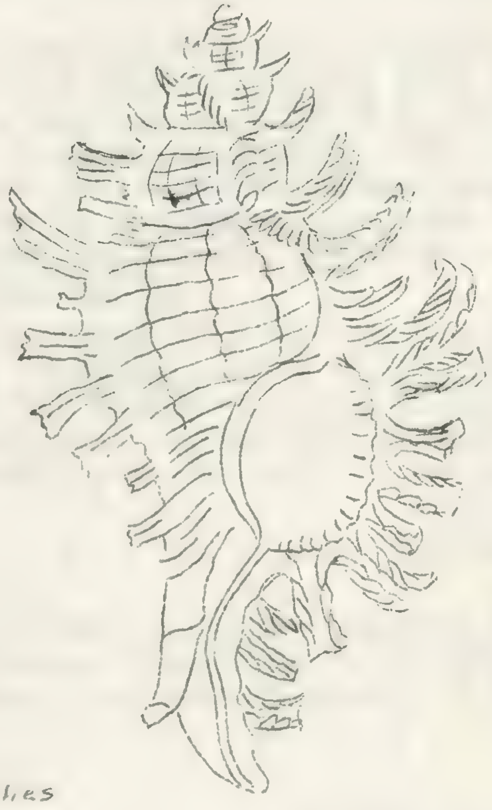
REVIEW

In Part 2 - "Chicoreus sensu stricto and Chicoreus (Siratus)", E. H. Vokes continues her careful studies of the fossil and Recent Muricidae from the western Atlantic region. (In TULANE STUDIES IN GEOLOGY, Vol. 3, No. 4; available to New York Shell Club members in their Club library.)

The Recent species of Chicoreus, of interest to readers of these NOTES, are brevifrons (Lamarck), florifer (Reeve), dilectus (A. Adams), argo (Clench and Farfante), and spectrum (Reeve). Of particular note is the author's discovery, while studying the collections in the British Museum of Natural History, that the earliest name for the Gulf of Mexico Murex florifer arenarius Clench and Farfante is Murex (i.e. Chicoreus) dilectus A. Adams. There is an adequate discussion of this subject and the author makes a convincing case as far as I can judge.

In reference to Murex spectrum Reeve, however, it may be here observed that this species has been for many years a problem to identify. Reeve did not have a locality for his species and this, of course, contributed the greatest difficulty for later workers. What appears to be spectrum is a very rare Caribbean shell that is also found on the coast of Brazil. I have examined a specimen from Brazil which was recently acquired by the American Museum of Natural History; it could very well be spectrum. However, material that has come to me recently from Queensland also seems to be identical with Reeve's figure of spectrum and, to complicate matters further, when the Queensland shells are compared to the specimen from Brazil, the similarity is too close for comfort. Which of these shells, inhabiting the two localities, is truly spectrum remains to be shown and, pending further studies now being carried out, the question will be left open.





HEIGHT 4 $\frac{7}{8}$ inches

(Continued on page 4)

Of further interest is Mrs. Vokes' finding, after examination of Type material in the British Museum, that a number of names, regarded in recent literature on the western Atlantic Muricidae as synonyms, are in fact valid species. The following are a few of particular interest: Murex elegans Sowerby, 1841 (renamed by Vokes perelegans, due to an earlier elegans Donovan 1804), Murex trilineatus Reeve, 1845 (also renamed by Vokes as reevei, due to an earlier Murex trilineatus J. Sowerby 1813).

There is much additional material of extreme value to specialists in Murex in this paper, but to keep this review from getting too long only one other fact of general interest need be noted here: Many collectors have obtained a species of Murex from Japan labeled dilectus A. Adams. According to the paper here being reviewed the name of the Japanese species is Murex oligacanthus Euthyme, 1889.

. . . . Anthony D'Attilio

ASPELLA (FAVARTIA) ANGERMEYERAE Emerson & D'Attilio

A new species of Aspella has been described by Dr. William K. Emerson, Chairman, and Anthony D'Attilio, Associate, of the Department of Living Invertebrates of the American Museum of Natural History. Among material received from Mrs. Carmen Angermeyer of Academy Bay, Santa Cruz Island, Galapagos Islands, was an apparently undescribed species of a muricid gastropod of the subfamily Trophinae. It was named Aspella (Favartia) angermeyerae for Mrs. Angermeyer, an avid collector of shells.

The type locality of this species is Academy Bay, in the intertidal zone. In addition to the holotype, a single paratype of apparently younger age was available for study. It was found in 10 fathoms off Rabida Island, Galapagos Islands, by Mrs. Angermeyer.

Mr. Allyn G. Smith of the California Academy of Sciences supplied the authors with Kodachrome transparencies of a third specimen that is in the collection of Mrs. Jacqueline DeRoy, also of Academy Bay, Santa Cruz Island, where the specimen was obtained from beach drift. Mrs. DeRoy later informed Mr. D'Attilio that she now possesses two other specimens of this new species. One was taken alive in 6 fathoms on sandy bottom off Floreana Island and the other specimen, which was occupied by a hermit crab, was taken from the beach at Academy Bay.

The new species is small (the holotype measures 20.7 mm. in length) and superficially resembles Maxwellia gemma (Sowerby, 1879) which ranges from Santa Barbara, California to Punta San Hipolito, Baja California, Mexico. It does differ in several significant conchological characters. For a detailed description and photographs, see the July, 1965 issue of THE NAUTILUS, Vol. 79, No. 1.

. . . . Dorothy Jensen

THE NAUTILUS, a quarterly publication, is the official organ of the American Malacological Union. Subscription: $4.25 per year ($4.75 to foreign countries). Mrs. Horace B. Baker, Business Manager, 11 Chelten Road, Havertown, Pennsylvania 19083.

STROMBUS (TRICORNIS) OLDI Emerson

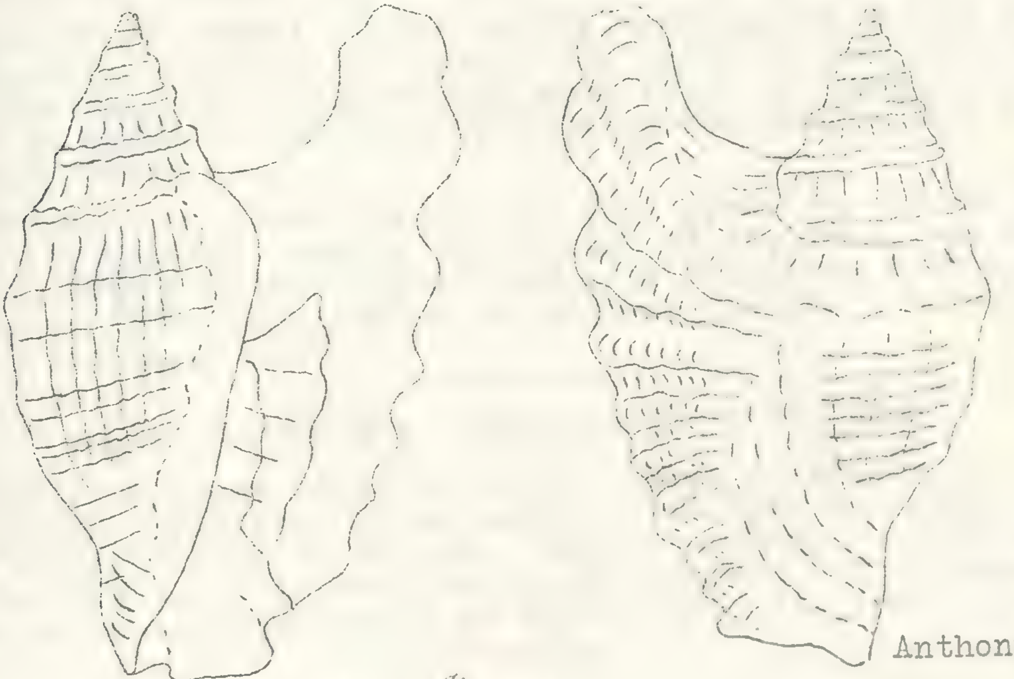
OR: How to Discover New Species Without Getting Your Feet Wet !

While engaged in his work with the museum collections, Bill Old has had the occasion to arrange and rearrange the shells in many of the scattered cabinets spread through several rooms of the Department of Living Invertebrates at the American Museum of Natural History. In an unlikely corner of one cabinet drawer Bill found a small collection of shells sent by some interested person to the museum many years ago, and which had lain gathering dust and forgotten until their rediscovery by Bill.

The shells had been collected on the coast of Somalia, and this fact alone made them of more than ordinary interest. Most eyecatching of all, especially to Bill's most highly trained eye, were three specimens of a species of Strombus that immediately struck him as something he had never seen, either in collections or in the literature on Strombus.

While Dr. Emerson was preparing the description for publication in INDO-PACIFIC MOLLUSCA, by a striking coincidence another specimen, of especial perfection, was presented to Dr. Abbott of the Philadelphia Academy. The donor was Mrs. Orville R. Davis, who New York Shell Club members will remember for her most entertaining and instructive account of collecting on the east coast of Africa. This specimen had previously been in the collection of M. Ramazotti of Somalia.

For the scientific details of the description and photographs of this attractive new Strombus, interested collectors are referred to the latest issue of INDO-PACIFIC MOLLUSCA, Vol. 1, No. 6. A subscription to this periodical with its monographic treatment of genera is a "must" for all serious collectors and students of molluscs. It is published by The Department of Mollusks, Academy of Natural Sciences of Philadelphia.



Anthony D'Attilio

Height 4 7/8 inches

We were kindly given permission to reproduce in our NOTES items appearing in THE CONCHOLOGISTS' NEWSLETTER, a quarterly, mimeographed publication produced by The Conchological Society of Great Britain and Ireland. The following is an excerpt from an article appearing in the June, 1965, issue (No. 13) which we feel will be of particular interest to our members. It is from Part II of a paper entitled:

MOLLUSCA IN THE MUSEUM

by F. R. Woodward

Upon keeping shells in storage for a period of years it often happens that specimens become coated with a white powdery deposit associated with loss of colour and decomposition of the shell, this phenomenon being referred to as calcining. It will also be noted that the shells affected are chiefly marine species and that the infection is haphazard, thus shells in the same box may or may not be affected.

The incrustation cannot be brushed off but is found to be soluble in water which, upon chemical analysis, proves to be calcium acetate. The treatment for calcined shells is therefore to soak them thoroughly in warm soapy water to remove the calcium acetate and then allow to dry.

Once dry bring back as much colour as possible by rubbing in oil. The process responsible for calcining is as follows:-

Wood cabinets made of oak emit traces of acetic acid vapour which has difficulty to escape from close fitting drawers. Due to relevant temperature changes throughout the year, some of the moisture present in the atmosphere trapped in the drawer tends to condense during cooler weather, taking some of the acetic acid vapours into solution. Marine shells, especially those which have not been soaked thoroughly, tend to retain traces of sodium chloride which, being hygroscopic, also tends to absorb acetic acid vapours thus giving rise to areas of high acidity on the shell surface which, being chiefly composed of calcium carbonate, reacts chemically forming the white calcium acetate incrustation.

Calcining may be prevented by thoroughly washing and drying all shells prior to storage, avoiding the use of oak cabinets and also periodic opening of the drawers to enable any acid fumes to escape. Further prevention can be taken in the form of rubbing the shells with oil as for bringing back colour. . . .

(Mr. Woodward also suggests the use of spun glass for use as stoppers in vials or for special packing or storage of specimens, as the corks and absorbent cotton commonly used may also react, as both are of vegetable matter, by bacterial action to produce traces of volatile acids to produce calcining.)

SHELLS WANTED FOR DISTRIBUTION TO CHILDREN

Each year Mystic Seaport distributes thousands of shells to children, many of whom had never seen a sea shell until they were able to pick one out at the Seaport's Junior Museum. Anyone wishing to give sea shells to Mystic Seaport for distribution at the Pynchon Junior Museum should contact the Education Department at Mystic Seaport, Mystic, Connecticut.

Usually ignored by collectors, the more we observe *Nassarius obsoletus* the more interesting they become. We think it high time they were given a word of appreciation, and present the following verses, which originally appeared in "Proceedings of the Philadelphia Shell Club", Vol. 1, No. 6, 1962, by kind permission of the author:

IT *IS* NASSARIUSLY SO!

by C. Van Housen

We're *Nassarius obsoletus*
And you're surely gonna meet us --
Millions of us ev'rywhere you go
O'er the Jersey flats Atlantic
Where the skeeters drive you frantic
And the *very* fragrant swampland breezes blow!

Oh, we're ugly and we're grimy
And we're weedy and we're slimy
But as scavengers, we really can't be beat!
For our favorite blue-plate platter
Is some very lifeless matter,
And this helps to keep the atmospherics sweet!

So when you talk of shelling
Don't forget us in the telling --
Give us lowly winkle-folk our honest dues!
We're a Mollusk Institution
With a world-wide distribution;
The Wizards of that Land, the Land of Ooze!

NEW YORK SHELL CLUB NOTES

No.117 Dec. 1965

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Please notify Corresponding Secretary of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JANUARY 9th, 1966, at 2:00 P. M.

PROGRAM: SHELLING IN ADAIR BAY, MEXICO (with color slides)
by Albert Taxson

FROM SAN BLAS TO GASPE (with color slides)
by William E. Old

CALENDAR OF SHELL SHOWS

February 18, 19 and 20, Fort Lauderdale: The Broward County Shell Club will hold their Shell Show in the Community Room at Britt's Department Store, Coral Ridge Shopping Center, 3200 North Federal Highway (U. S. Highway No. 1) Information and application forms may be obtained from Mrs. Jean S. Redding, Chairman, 517 S.W. 9th St., Fort Lauderdale, Fla.

February 18, 19 and 20, Naples, Florida: The Naples Shell Club, Inc. will hold their annual Shell Show at the Naples Womens Club Building, Park Street, Naples. For information as to entries you might contact Dr. William H. Cole, 248 Third Avenue South, Naples, Florida 33940

February 18, 19 and 20: The Palm Beach County Shell Club will hold its annual Shell Show. In past years it has been held at the Lake Worth Casino, but as we do not have verification at this writing visitors should check locally.

March 3,4, & 5, Sanibel, Florida: The Sanibel-Captiva Shell Club will hold their annual Shell Show at the Sanibel Shell Fair, to be held at

the Sanibel Community Center on the first weekend in March. For information concerning categories and for applications for entry, write to Shell Show Chairman: Mr. Arthur Burt, Schooner Place, Sanibel Island, Florida 33957. (Entry applications should be in the hands of Entries Chairman Mrs. Marguerite Flores, Captiva Island, Florida 33924, by Saturday, February 26th -- so don't lose any time if you'd like to submit an entry.) Judges will be Dr. William J. Clench, Museum of Comparative Zoology, Harvard and Dr. Donald R. Moore, Institute of Marine Science, Miami, Florida.

March 18,19 & 20, Sarasota, Florida. (We have no details.)

March 23 through 27, Saint Petersburg, Florida: The St. Petersburg Shell Club will hold their 19th Annual Shell Show at the Treasure Island Auditorium, 120 108th Avenue, Treasure Island, Florida. (If you are not driving, take the Gulf Beach bus from St. Pete.) For further information write to Shell Club President V. Roger Dunn, 5021 18th Avenue South, Gulfport, Florida.

COMING EVENTS:

Sunday, April 17th: The New York Shell Club's own Shell-Social to be held at the Broadway Dance Studio, 31-08 Broadway, Astoria, Long Island. There will be no regular meeting at the Museum in April -- instead, a Shell-Social to combine a short auction, bargain counters, food and etc. More details later. dr

AMUPD TO MEET IN SEATTLE

June 20 - 23, 1966: The 19th annual meeting of the Pacific Division of the American Malacological Union will be held at the University of Washington, Seattle, Washington. Hosting will be the Pacific Northwest Shell Club; lodging will be at the University dormitories at modest rates.

AMU TO MEET IN CHAPEL HILL

August 22 - 26, 1966: The 32nd annual meeting of the American Malacological Union will be held at the University of North Carolina at Chapel Hill, North Carolina. AMU members and their friends will be the guests of the North Carolina Shell Club. Dormitory rooms will be available at exceptionally attractive rates; detailed information will available in April. mct

---

FROM THE MAIL BAG: Mr. Georg Scheller, 3381/Immenrode 133, Uber Goslar, West Germany, writes that his shell collection contains sea, land and freshwater shells from all parts of the world. He would like to sell his European shells, a total of about 945 species and 4650 specimens. "All shells are exact determined and have labels containing name, place of finding and collector (the name with author's name). The quality is good. Many varieties are in the collection. The prices are very cheap." Mr. Scheller has divided his European shells into four groups (land gastropods, sea gastropods, sea bivalves, freshwater gastropods and bivalves) for sale separately or together.

GEORGE F. KLINE HONORED BY BRASIL

Mr. George F. Kline has received just about the highest civilian honor possible to be awarded in Brasil in the Câmara Cascudo Cultural Medal of the Instituto de Antropologea at Natal, Brasil. It was given in recognition and appreciation of his work in helping to establish a Department of Malacology in the Instituto de Antropologea (which is a part of Universidade do Rio Grande do Norte) and for the furtherance of international relations and good will.

The award bears the name of Brasil's outstanding author, Câmara Cascudo, a specialist in folklore.

George and Mary Kline spent the month of December, 1963, in Natal, the trip having been arranged through the Academy of Natural Sciences of Philadelphia. The Academy could not have selected better ambassadors.

Our sincerest congratulations to George and Mary on this well-deserved recognition.

dr

'EAR 'EAR!

From THE NAUTILUS, vol. 4, p. 38, 1890:

"There are about two hundred boats engaged in scallop dredging and each boat is allowed by law to take only twenty-five bushels per day from September 1st to April 1st, making only five thousand bushels per day for seven months in the year. The adductor muscle only is eaten, while the rest of the animal (the "rim", so called) is thrown away. If cats are allowed to eat the rims their ears drop off. This fact is well known to all scallop dredgers and a good many earless cats can be seen at Pawtuxet and East Greenwich (Rhode Island) at any time, caused by eating scallop "rims" of which they are very fond."

- - - Horace F. Carpenter

NOTE: At first sight this seems to be such a ridiculous statement that the tendency is to pass it off with a snort or a laugh. But Mr. Carpenter had the reputation of being a careful student of mollusks, and his studies of the shell-bearing mollusca of Rhode Island (printed in numerous articles in THE NAUTILUS and in its predecessor, THE CONCHOLOGICAL EXCHANGE) are among the best local studies ever printed in the United States. Can there be anything to this apparently ludicrous remark?

M.K.J.

ANOTHER IMAGINATIVE CONCLUSION

From the writings of Claudius Aelianus, about 200 A. D.:

The *Pinna* is a marine creature and belongs to the class of bivalves. It opens by parting the shells that enclose it, and extends a small piece of its flesh like a bait to the fish that swim by. The Crab however remains by its side, sharing its food and its feeding-ground. So when some fish comes swimming up, the Crab gives the *Pinna* a gentle prick, whereat the *Pinna* opens its shell wider and admits the head of the approaching fish (for the fish lowers its head to feed) and eats it.

. . C. B. Schmitt

THE FAMILY LITTORINIDAE

by Marian M. Schroth

I am especially interested in the family Littorinidae -- the Periwinkles. It is the only family of gastropods where I have managed to acquire at least one specimen of each species now living in the Western Atlantic. Since they usually live between high and low tide, live specimens are easily accessible. Because they are relatively common, somewhat more information is available about the animals. There are comparatively few genera, and most of the species are in one genus. Although some collectors are discouraged by the small size of many of the Littorinidae, many apartment-dwellers will find the small size an advantage. My entire collection fits into one large flat box!

First let us look at the position of the family taxonomically:

CLASS	Gastropoda (which includes all snails)
SUB-CLASS	Prosobranchia (where gills are in front of heart)
ORDER	Mesogastropoda (a very varied order with animals more advanced than the Archeogastropoda and less advanced than the Neogastropoda)
SUPERFAMILY	Littorinacea
FAMILY	Littorinidae

In the Western Atlantic there are only four genera of the family Littorinidae, and most of the species are in the genus *Littorina*. Listed alphabetically, they are *Littorina angulifera*, *irrorata*, *lineolata*, *littorea*, *meleagris*, *mespillum*, *nebulosa*, *obtusata*, *saxatilis* and *ziczac*. The other three genera and species are *Echininus nodulosus*, *Nodolittorina tuberculata* and *Tectarius muricatus*. You will probably find some unfamiliar names in that list. *Littorina littorea*, *obtusata* and *saxatilis* live around New York, and I understand that *L. irrorata* lives as far north as New Jersey.* The others are found in Florida and the Caribbean. As far as I know, *nebulosa* is the only species in the Caribbean that is not also found in southern Florida. I received a specimen from Venezuela.

I especially want to point out *L. lineolata*, which for many years was thought to be the male of *L. ziczac*. In the October, 1964 issue of THE NAUTILUS, Vol. 78, No. 2, Dr. R. Tucker Abbott wrote: "...That two species were involved was noted by Dr. J. P. E Morrison (in litt.) on the basis of shell characters. Thanks to fresh material obtained in Grenada by Mrs. Ruth Ostheimer and Dr. Minerva Buerk, it is now known that males and females are present in two forms." The two species have similar markings and live in about the same range, but *L. lineolata* is smaller, with flat-sided whorls, and *L. ziczac* is usually larger, with well-rounded whorls, and lighter in color.

Like most Mesogastropods, the Littorinidae have Taenioglossate radulae. They are herbivorous, scraping algae off the rocks on which they live.

The operculum is always corneous (horny) and is usually paucispiral (having a few whorls that enlarge rather rapidly). In the Western Atlantic only one species -- *Echininus nodulosus* -- has a multispiral operculum, with many whorls that enlarge only slightly on each turn and produce an operculum that is almost circular. The operculum is close-fitting in the aperture of the shell, as a protection against desiccation (drying)

as well as against enemies. The color of the operculum varies with the species; it ranges from brown to pale tan to yellow.

The shell itself has a distinctive shape, somewhat like a child's toy top -- easier to show than describe. The shells are pointed but generally are rather low-spired. They are holostomatous, having a round or pear-shaped aperture and neither an anterior nor posterior siphonal canal. The genera with bumps or knobs on the shells (*Echininus*, *Nodolittorina*, *Tectarius*) are sometimes called knobby periwinkles or pricklywinkles, and they often have an umbilicus in the form of a small slit or other opening near the base of the columella. In the genus *Littorina* (periwinkles proper) you seldom find an umbilicus.

Littorinidae take their name from their habitat. They live in the littoral (shore) area of the ocean floor and are usually found between high and low tide lines. A few species even live above high tide in what is known as the "splash zone". They live mostly on rocks or in situations where they can find algae.

The method of reproduction is not known for all species, but I would like to contrast two local species. *Littorina littorea* is oviparous (laying egg capsules) and has planktotrophic larvae that live in the plankton for a period of time before settling down to grow a shell. On the other hand, *Littorina saxatilis* is ovoviviparous, keeping the fertilized eggs within the shell so that the young are at the crawling stage when they leave the mother's shell. This difference is important in the distribution of a species. *L. saxatilis* can extend its range only as fast as the snails can crawl. The larvae of *L. littorea*, in contrast, can be carried many miles from the parent's original home while living in the plankton, and can start a new colony if favorable conditions are found. Recent research indicates that *L. littorea* originated in Labrador. It extended its range from Labrador to New Jersey, apparently in less than 100 years. I should note that for many years it was thought that man introduced *L. littorea* accidentally from Europe in the 1800's.

L. obtusata and *L. saxatilis* are also found on both sides of the northern Atlantic but it appears that these two species are autochthonous (native) to New England. *Littorina angulifera* is found in mangrove swamps in both the Caribbean and West Africa, but I found no opinion on where it may have originated.

There are several *Littorinas* in the Western Atlantic that resemble *Littorinas* found in the Pacific. Some of these look-alikes are *L. saxatilis* and *sitkana*, *ziczac* and *mauritiana*, *angulifera* and *scabra*. More will have to be learned about the biology of the various species before it can be determined if they really are the same or different species.

*(Editor's note : The American Museum of Natural History has a small series of *Littorina irrorata* collected two years ago by member George C. Colantonio, Jr. from a colony at Manasquan Inlet, New Jersey. This is only about 23 miles south of the Atlantic Highlands. The find was unusual in that *L. irrorata*, formerly ranging to New England, had apparently died out north of Maryland. The find was reported in NOTES No. 96, November, 1963. -- dr.)

A. E. SALISBURY -- 1876 - 1964

In November of 1964 A. E. Salisbury died in England at the age of 88. I gleaned the following information on this interesting conchologist from the obituary by E. C. Babcock that appeared in the December, 1964 issue of the JOURNAL OF CONCHOLOGY, vol. 25, no. 7, pp. 293-298.

. . William E. Old

In 1931, Salisbury took over the editing of the Mollusca section of the "Zoological Record", which he continued up to the time of his death. This was the longest editorship of the "Record" since its commencement in 1868. For this task his working knowledge of some of the principal European languages, together with his early study of Latin, was a great asset.

Salisbury was an ingenious inventor and could construct almost anything that he required. His inventions include the bar electric fire, the immersion heater, and the mercury arc lamp. He was beaten by Marconi by only three days in patenting a device for sending Morse signals by wireless telegraphy. When he once displayed a fine large compound microscope at a meeting of the Natural History Society, and asked what make it was, he replied, "It's a Salisbury." He was rather indignant when it was suggested that he had bought the objectives. "They are easily made," he said, "one only needs to melt a little glass and polish it." He also made hundreds, if not thousands, of glass-topped boxes for his shells.

The phenomenal amount of work that he accomplished, including household chores and gardening, was bewildering. As a retired business man he knew the importance of organizing his life. When he rested, as he called it, from conchological studies, he made specimen boxes, bound books, repaired clocks, or packed up parcels of shells to send to friends. He was very generous with his duplicates. When I (Babcock) took a single shell to him for identification, he would often give me one or two of the same kind "to keep it company". On a winter's night, a tour of his numerous cabinets was unforgettable. He led the way dragging yards of flex (cord) attached to a powerful, shaded electric bulb which could be fixed to the side of an open drawer by means of an ingenious "Salisbury clip".

When comparing an unknown shell with those in a cabinet, he always held the unknown one in his left hand and the named specimen in his right hand, to avoid mistakes. He considered that this habit should be adopted by all conchologists.

When his great friend Tomlin presented his vast world-wide collection of shells to the National Museum of Wales, Salisbury's collection became the largest and best in private ownership in the British Isles, or possibly in Europe. It had to be seen to be believed. The bulk of it was contained in some fifty cabinets, some of which were eight feet high. Thousands of other shells lay in trays and boxes about the spacious house, even in the roof space. In addition there were cabinets of world-wide Coleoptera, of which he had expert knowledge, Lepidoptera, Hymenoptera, and also various fossils. Interspersed were gramaphone records, foreign stamps, some fine antique furniture, clocks, china, glass, paintings, and other possessions, which prevented the house from looking too much like a natural history museum. On all floors and landings were numerous books, neatly classified. The extensive molluscan library, in many languages, -

would have been coveted by a millionaire conchologist.

Salisbury's collection of shells was world-wide and general, including a vast number of British specimens, several of which were in series showing successive stages in growth. About 1946 he purchased almost the entire stock of the late Hugh Fulton (of Sowerby and Fulton), one of the largest scientific shell dealers in the world, who claimed to stock nearly 25,000 species. Salisbury's favorite groups were Tellinidae, Pectinidae, Cypraeidae, Volutidae, and Clausiliidae.

In 1962 Salisbury sent 39 cabinets of shells and 14 cases of books on Mollusca, in two furniture vans, to the Royal Scottish Museum which lacked a really good molluscan collection. He was delighted that his old friend, A. R. Waterson, was going to be curator of this fine collection.

Not long after the shells and books had gone north he had restarted collecting shells and molluscan literature; he was a born collector. Once when we were discussing the longevity of some of his departed conchological friends, he said that collectors were always looking to the future for fresh acquisitions, and he felt sure that it was this anticipation that kept them going so long. Not all his shells went to Edinburgh. For example, the world-wide collection of Tellinidae was willed to the British Museum (Natural History).

Salisbury was an Associate of the British Museum (Natural History) and spent much of his time working there in the Mollusca Section until about a year before his death, when his doctor advised him to discontinue the journey from High Wycombe to London.

IN SYMPATHY

Our deepest sympathy is with our member Elizabeth Bixby in the loss of her husband, Harold McMillan Bixby, who died at Captiva on November 19th.

Mr. Bixby, retired vice president of Pan American Airways, had a long association with aviation. Formerly of St. Louis, he was one of the backers of Charles A. Lindbergh's 1927 flight across the Atlantic and the man who named Lindbergh's plane "The Spirit of St. Louis".

TRACE OF PESTICIDE CAN KILL

Scientists have revealed that amazingly small amounts of pesticides can kill aquatic life. One part of DDT in one billion parts of water (1ppb) was found to kill blue crabs in eight days. One part per billion is the relationship one ounce of chocolate syrup would bear to 10,000,000 gallons of milk.

Under experimental conditions, the oyster was found to detect and store pesticides present in the water at concentrations as low as ten parts per trillion and the growth of oyster shell was stunted.

These and other new findings on the dangers of certain chemicals to wildlife are contained in the 1964 annual report "The Effects of Pesticides on Fish and Wildlife", Circular 226, which may be obtained without charge from the Fish and Wildlife Information Office, Department of the Interior, Washington, D. C. 20240.

. . N. Y. State "Conservationist"

SHELL GAME

(Mr. Adlai B. Wheel, Sr., is Museum Director at the Syracuse Boys' Club, 430 East Genesee Street, Syracuse, New York 13202. He would be grateful for your donations of natural history items, molluscan or otherwise, for use in his classes and for exhibit. He contributes the following item:)

"The other evening we had at our home for dinner, prior to his speaking before our Adventurer's Club group of boys, a gentleman from India who told us of an interesting game, somewhat like dice, which is a favorite form of amusement in his homeland. The participant uses seven uniformly sized money cowries which he shakes in his cupped hand as though they were dice. He rolls them on the table and then counts those wherein the underside is visible. If the player is fortunate enough to turn up five this counts on the score 25. By adding the bottoms-up points, the first participant to attain a score of 100 is designated the winner."

SHELL-OF-THE-MONTH

The Shell-of-the-Month at the December meeting featured the beautiful specimen of Conus gloriamaris on exhibit in the Glory of the Sea (Shell Shop) on Sanibel, owned by Edith H. Mugridge.

The specimen was found alive in six feet of water by a native who was surface fishing at night near the island of New Ireland. Through the facilities of the Australian Government, Miss Mugridge dealt directly with the collector, who was thus able to realize the full value of the shell without the deductions of the usual middle-men. The specimen is unusually beautiful, measures 5 3/16" in height, has a perfect edge, and the owner is deservedly proud. A color slide, taken by John Proetz, enabled all present to appreciate the specimen.

MUSINGS: Do you suppose that, by any chance, Mr. Carpenter's article for THE NAUTILUS (see page 3) was dated April 1st?

* * *

It is interesting to note that the commensal crab in Pinna (see page 3) was observed away back in the year 200 -- but by what reasoning it was concluded that Pinna was carnivorous we cannot figure out. Perhaps the small fishes were nibbling at some growth on Pinna's shell?

NEW YORK SHELL CLUB NOTES No.118 Jan. 1966

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NEXT MEETING: SUNDAY, FEBRUARY 13, 1966, at 2:00 P. M.

PROGRAM: JENSONIA (with color slides)
by Norman Jensen

ON THE IDENTITY OF MUREX SPECTRUM Reeve
by Anthony D'Attilio

SHELL-OF-THE-MONTH (to be announced)

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*EXCEPTION TO SCHEDULE: On April 17th, 1966, our Shell-Social will be held in the main room of the Broadway Dance Studio, 31-08 Broadway, Astoria, Long Island. Shells, slide presentation, shells, entertainment, shells, food! (No regular meeting at the Museum in April.)

ADDITIONS TO SHELL SHOW CALENDAR (See NOTES No. 117):

February 16, 17, 18, 19, 20, Lake Worth, Florida: The Palm Beach County Shell Club will hold its Shell Show at the Lake Worth Casino on Rt. A1A.

March 13, 14, 15, Miami, Florida: The South Florida Shell Club's Fifth Annual Shell Show will be held at the Museum of Science and Natural History, Miami. Rita Sturgeon, Shell Show Chairman.

SHELLING IN CHOLLA BAY, MEXICO
by Albert Taxson

In discussing the relative merits of shell collecting areas along the Gulf of California, Puerto Penasco was mentioned as one of the better locations. The name intrigued me and, as I had never heard of it, the place picked at my memory. I decided to visit Rocky Point sometime and attempted to learn something about it. From the road map I could see that it was easily accessible. The point of entry was Sonoita in the province of Sonora and adjacent to Lukeville, Arizona. One drives sixty-five miles through the Grand Desert along a good black top road to reach Puerto Penasco. Every now and then I tried to learn something about this Mexican town. It was to no avail -- even the official Mexican Tourist Agency had never heard of it. After all, what traveler in his right mind would want to see such an out-of-the-way place?

Some time later when on a short vacation to Florida we visited a friend and, while discussing shells and shelling, I asked if she had ever heard of Puerto Penasco. Jumping up, she went to a cabinet and extracted a letter which she explained was from a friend who had a cottage in Cholla Bay, an American colony situated about ten miles from Puerto Penasco. The letter contained a good description of Cholla Bay.

When we returned home to New York, I wrote a long letter to this friend's friend, asking for as much information as could be had about Puerto Penasco. The answering letter told me what I wanted to know, but suggested Cholla Bay as a much better shelling area. It was suggested that we rent a cottage, bring our own meats, fresh vegetables and water from the States, and set up housekeeping.

Time passed, and when we were ready to go to Western America we sent another letter saying we were on our way. We received a prompt reply, telling us to come.

Our itinerary began with a trip to Corpus Christi, Texas, where we visited Padre Island and found very little. We tried the other end of the island at Brownsville and found some more of the same. From there the trip took us across Texas, New Mexico and Arizona to Tucson. We spent four days sightseeing around Tucson, then stocked up our ice bucket with meats, vegetables and other perishables, bought a lot of canned foods, filled our containers with fresh water and set forth over the desert to Mexico and the Sea of Cortez.

The trip to Puerto Penasco was uneventful. We found the turnoff to Cholla Bay just before we got to the town and drove the nine miles over a dusty, bumpy, dirt road. We had no trouble finding the house of our correspondent -- and there we were, looking at Iva Barker and being introduced to her husband, Pete. We just stood and talked for close to an hour, then Anne said:

> "We had better find a place to live pretty soon. I want to get the meat and things out of the ice bucket and into a refrigerator before they spoil!"
>
> "There are no places for rent out here." Mrs. Barker replied -"You are going to live right here."

We wasted no time in moving in. The Barkers had just returned from a long shelling trip in Mexico and were still living in their camper which

was parked alongside the house. We shared our meals and had their house to ourselves. In the ensuing week the Barkers took us all over the Cholla Bay area in their beach buggy. They have had the cottage for fourteen years and know all the spots where shells are to be found. The beach buggy is a jeep with enormously inflated tires and rides easily over all types of terrain, so we were able to get to reefs along the shore that were much too far to get near by walking.

Cholla Bay is described by Dr. S. S. Berry on page three of Myra Keen's "Seashells of Tropical Western America". When we were there (in the spring) the tide went out at least two miles. It took us much more than an hour to walk from the shoreline to the extreme low tide line along the flats and tide pools. Quite a number of species live in the various environments created by the flats, and along the way there were shells to be picked and we picked them. We were fortunate that during our stay the low tides were in the mornings: Our days were divided by going out shelling, having lunch, and cleaning and packing shells until bedtime.

We collected in all the environments except one. This was the backwash of the high tides in the salt marsh area, where there are Melampus. We never got around to this place. All the shells collected by the four of us were given to us -- the Barkers didn't take any for their own shell collection.

We left Cholla Bay with quite a lot of shells, feeling very grateful to Iva and Pete for their generosity and helpfulness in taking us, complete strangers, into their home and going out every day to help us find shells.

In the final count I believe we will have over 150 species. So far, I have identified more than 100. In addition to these from Cholla Bay, Mrs. Barker gave us more than 80 species which she had collected on their trip through Mexico.

MARINE SHELLS FOUND IN ADAIR BAY, CHOLLA BAY, SONORA, MEXICO

by Anne and Albert Taxson, April-May 1965

NOTE: The number preceding the species refers to the number under which that species is listed in Dr. Myra Keen's "Sea Shells of Tropical Western America".

PELECYPODS

37 Arca pacifica (Sowerby, 1833)
43 Barbatia reeveana (D'Orb., 1846)
44 Barbatia illota (Sowerby, 1833)
74 Glycymeris gigantea (Rve., 1843)
90 Lithophaga aristata (Dil., 1817)
91 Lithophaga attenuata attenuata (Deshayes, 1836)
91a Lithophaga attenuata rogersi Berry, 1957
94 Lithophaga plumula (Hanley, 1843)
100 Modiolus americanus (Leach, 1815)
111 Pinna rugosa Sowerby, 1835
113 Atrina tuberculosa (Sow., 1835)
115 Isognomon chemnitzianus (D'Orbigny, 1853)
116 Isognomon janus Carpenter 1856
118 Ostrea columbiensis, Hanley 1846
126 Pecten vogdesi, Arnold, 1906
132 Aequipecten circularis (Sow., 1835)
152 Anomia peruviana, D'Orbigny, 1846
162 Cardita affinis, Sowerby, 1833
200 Codakia distinguenda (Tryon, 1872)
212 Diplodonta sericata (Reeve, 1850)
214 " semirugosa, Dall, 1899
240 Chama frondosa, Broderip 1835
252 Trachycardium panamese (Sow., 1833)
255 Papyridea aspersa (Sowerby, 1833)
256 Trigoniocardia granifera (Broderip and Sowerby, 1829)
258 Trigoniocardia biangulata (Broderip and Sowerby, 1829)
262 Laevicardium elatum, (Sow., 1833)

(Pelecypods, continued:)

301 Pitar vulneratus (Broderip, 1835)
305 Dosinia dunkeri (Philippi, 1844)
306 Dosinia ponderosa (Gray, 1838)
318 Chione californiensis (Broderip, 1835)
319 Chione compta (Broderip, 1835)
321 Chione undatella (Sowerby, 1835)
322 Chione cortezi (Carpenter, 1864)
323 Chione fluctrifraga (Sowerby, 1853)
326 Chione gnidia (Brod. & Sow., 1829)
386 Tellina lyrica, Pilsbry & Lowe, 1932
393 Tellina arenica, Hertlein & Strong, 1949
516 Solen rosaceus, Carpenter, 1864
523 Corbula bicarinata, Sowerby, 1833
539 Gastrochaena ovata, Sowerby, 1834
547 Barnea subtruncata (Sowerby, 1834)

GASTROPODS

16 Nomacopelta dalliana (Pilsbry, 1891)
17 Nomaeopelta mesoleuca (Menke, 1851)
18 Nomaeopelta stanfordiana (Berry, 1957)
32 Diodora inaequalis (Sowerby, 1835)
34 Diodora saturnalis (Carpenter, 1864)
52 Tegula globulus (Carpenter, 1856)
54 Tegula mariana, Dall, 1919
54a Tegula mariana mariamadre, Pilsbry and Lowe, 1932
55 Tegula panamensis (Philippi, 1851)
58 Tegula rugosa (A. Adams, 1853)
64 Turbo fluctuosus, Wood, 1828
81 Nerita scabricosta, Lamarck, 1822
82 Nerita funiculata, Menke, 1851
83 Neritina luteofasciata, Miller 1879
181 Turritella banksi, Reeve, 1849
183 Turritella gonostoma, Valenciennes, 1832
185 Turritella leucostoma, " "
201 Petalochonchus indentatus (Carp., 1856)
211 Cerithium maculosum, Kiener, 1841
214 Cerithium sculptum, Sowerby, 1855
215 Cerithium steromuscarum, Valenc., 1833
225 Hipponix antiquatus (Linné, 1767)
226 Hipponix grayanus, Menke, 1853
233 Calyptraea mamillaris, Broderip, 1834
248 Crepidula striolata, Menke, 1851
252 Crucibellum scutellatum (Wood, 1828)
254 Crucibulum sponosum (Sowerby, 1824)
258 Natica chemnitzii, Pfieffer, 1840
274 Polinices reclusiana (Deshayes, 1839)
287 Cypraea annettae, Dall, 1885
295 Trivia pacifica (Sowerby, 1832)
299 Trivia solandri (Sowerby, 1832)
307 Strombus galeatus, Swainson, 1823
308 Strombus gracillor, Sowerby, 1825
309 Strombus granulatus, Swainson, 1822
315 Cassis centriquadrata, Valenc., 1832
324 Cymatium gibbosum (Broderip, 1833)
335 Murex elenensis, Dall, 1909
336a Murex recurvirostris lividus, Carpenter, 1857
339 Hexaplex erythrostomus (Swainson, 1831)
344 Muricanthus nigritus (Philippi, 1845)
364 Eupleura muriciformis (Broderip, 1833)
404 Acanthina angelica, Oldroyd, 1918
534 Cantharus elegans (Griffith and Pidgeon, 1834)
543 Cantharus macrospira (Berry, 1957)
545 Cantharus pallidus (Brod. & Sow., 1829)
567 Melongena patula " " " "
610 Fusinus dupetithourarsi (Kiener, 1846)
612 Fusinus ambustus (Gould, 1853)
620 Oliva incrassata (Solander, 1786)
625 Oliva spicata (Röding, 1798)
630 Agoronia testacea (Lamarck, 1811)
663 Harpa crenata, Swainson, 1822
669 Marginella californica, Tomlin, 1916
728a Knefastia walkeri, Berry, 1958
910 Trigonostoma goniostoma (Sow., 1832)
926 Conus perplexus, Sowerby, 1857
930 Conus ximenes, Gray, 1839
941 Conus regularis, Sowerby, 1833
982 Bulla gouldiana, Pilsbry, 1895

SHELL COLLECTING FROM SUNKEN SHIPS

by Pedro de Mesa

Because of the zoogeographic position of the Philippines and the fact that it consists of thousands of islands, there are plenty of old wharves, piers, and sunken ships in the Philippine Sea that become suitable places or objects for marine bivalves to settle, grow, and multiply. Most of these bivalves are generally what we call clams, oysters and the like, which conchologists call Spondylus (Thorny Oysters), Chamas, Ostraea, Cardium, Arca and Mytilis. These grow in clusters and are held together and attached to thorny oysters so that, sometimes, three to five different genera are found in one unit.

The following account is taken from the book, "Submarine!" and some information from the Commander of the submarine, SEA RAVEN, that was en route to Corregidor with supplies when the Rock fell.

"The Old Lady was a submarine tender, CANOPUS, a product of 1919, originally built for the merchant marine service. The Navy acquired her from the Grace Line in 1921, and converted her into a tender of submarines. Supplied with forges, machine shops, oil tanks and other vitals necessary for her trade, she had been mothering her submarine broods for some 20 years when the war broke out in Manila.

"The night before General Homma marched in, she moved down to Mariveles Bay to tend the Asiatic Fleet subs which had been driven there from Manila and Cavite. On December 29, 1941, Jap aviators spied and bombed her. That wrecked her propeller shaft, started fires that threatened to explode the magazine, and killed a number of her men. The skipper, Cmdr. E. L. Sackett, and crew put out fires and kept her afloat.

"On January 1, 1942 when the subs were ordered to Java the tender found herself left behind; lame as she was, she would have been a target for enemy planes. Her crew hoped to make a dash for Soerabaja later, but an air attack in early January settled the matter. Bombs hit her upper decks and smokestacks, ruined and left her listing and battered with 15 casualties. 'The tough old girl was not ready for her grave yet,' Cmdr. Sackett wrote in a biographical article, 'but if she was to continue in a career of usefulness, it seemed best to make the Japs think the last bomb did the trick.' Next morning when 'Photo Joe' in a scouting plane came over, his pictures showed what looked like an abandoned hulk, from which wisps of smoke floated up for 2 or 3 days. What he did not know was that smoke came from oily rags in strategically placed smudge pots, and that every night the seemingly abandoned hulk hummed with activity.

"Unable to sail, she was able to operate. Sackett and crew kept her going in big gear. About eleven of the tender men took up lodging in storage tunnels that the army had dug in a cliff flanking the Bay. The old CANOPUS, listing in the shallows, was turned into a machine shop, working on a 24-hour basis to aid the defenders of Corregidor.

"Sitting in the bay like a stranded river steamer, all Hades exploding around her and the next bomb liable to blast her into the hereafter, CANOPUS became a kingpin in the last ditch for Philippine defense. Submarines, which plowed sea lanes looking for Japanese shipping, occasionally visited her, bringing supplies, medicine, and taking out passengers, especially trained men needed elsewhere. Through burning February and blasting March, CANOPUS stuck it out at her bomb-thrashed anchorage.

Hospital, machine shop. P. X., communication center -- she was all these for all forces fighting in Bataan and the Rock. They called her the 'Old Lady'. Her technicians labored like giants and her forges turned out mechanical gems when the Jap guns were right on top of Mariveles.

"On April 8th, the end came. All hope of Bataan was gone. Around the shores of Mariveles Bay, Navy men blew up the Dewey floating drydock, and scuttled ships. The CANOPUS seemed reluctant to go, but her crew could still take pride in the fact that Japs were unable to knock her out. She backed out on her own power to deep water; there she was laid to rest by the hands of the sailors she had served so faithfully. The tender's launches were turned over to Mine Force sailors and her remaining crew supported Corregidor's defenses."

The above account shows why it is presumed that marine shells (bivalves) which are now found as hosts inside the CANOPUS in 1959 are estimated to be about 17 years old or less, and will serve for comparison with shells of the same genus when size, shape, etc. are the same and without the benefit of consulting any book on conchology.

The CANOPUS is still in Lilimbon Cove, a very quiet and well protected part of Mariveles Bay that is not affected by strong currents nor by waves, which is why she became a rich growing home of mollusks. Several of the shells that could be collected inside the ship at 3 to 5 fathoms are Spondylus of various species -- with bright colors such as red, orange, white, brown, purple --Chamas, Ostreas, Cardiums, and other, minute shells.

When the time comes that the steel, iron, etc. are needed for the construction or repair of other ships by the NAASCO, and as the CANOPUS is about 200 meters away from the Philippine shipyards at Mariveles, it will then be the best time to collect the shells by those who are sacrificing time, labor, and money in making researches on Philippine marine shells for the benefit of science in general and the economic development of the country in particular.

June, 1959

AN AUCTION OF INTEREST

A fine collection of rare and unusual shells from the estate of B. Frank Grunzig is to be presented at auction on the afternoon of March 6, 1966, at the Broadway Dance Studio, 31-08 Broadway, Astoria. Inspection of shells from 12:00 noon to 1:00 P. M.; auction from 1:00 to 6:00 P. M. For further information, inquire of Nick Katsaras, Manager, whose address is 479B South Washington Avenue, Bergenfield, New Jersey.

TIDE TABLES

Field workers and beach combers will want the 1966 "Tide Tables" published by Coast and Geodetic Survey, U. S. Department of Commerce. The new edition of "Tide Tables" for the "East Coast, North and South America" may be obtained from regional and field offices of the Bureau and from numerous sales agents. Locally: the field office at 90 Church St., New York, N. Y. 10007; Hammond Maps, Inc., 1 E. 43rd St., New York, N. Y. 10017. The price: $2.00 plus 10¢ N. Y. C. tax, by mail or in person.

COLOR VARIATIONS IN CYPRAEA PANTHERINA

by Vincent Cusumano

Not long ago a friend of mine, who is a merchant seaman, called me and said he had a surprise for me. It was a box of sea shells that he had obtained at Massaua, Eritrea, in northeast Africa. They were cowries, and my eyes popped when I saw the variety of colors and patterns -- it seemed to me that there were several species!

Some time later, when I asked for help with the identification, I was surprised that, for shell after shell, the same name was called: Cypraea pantherina! I'll try to describe some of their different combinations of color and pattern:

1 White with simple brown spots on top and sides.
2 Horn color with dark brown spots.
3 Light grayish blue with faint dashes and spots of brown.
4 Light brown on top, heavier brown on sides, spots very few to none on top, but heavily spotted on sides with additional white lines across top.
5 Brown on top, sides with dash of bluish gray to white, spots very dark to blackish brown.
6 Faun color, top unspotted, sides only lightly spotted.
7 Heavy brown splashes on a light grayish color.
8 Chocolate brown on top with light lines crossing, spots barely visible on top, sides grayish, tinted with spots.
9 Grayish blue with blotch of brown on top and spotted.
10 Very light gray with splotches of dark brown on top, sides heavily spotted, sides toward bottom richly colored with orange.
11 White and grayish with heavy blackish spots all over, orange spots towards sides to bottom.
12 Coloration as in Cypraea tigris with a line across the top.
13 Splotches of blackish color over dashes of gray and faintly white, a thin white line in center of a brown line on top.

Still other specimens had intermediate combinations of spots, splotches of brown, etc. in bewildering variety. But on all the specimens the base was entirely white. I suppose if all these specimens come from the same locality in Eritrea, then Cypraea pantherina has a very wide range of coloration in just one area.

In checking the localities for Cypraea pantherina in books I have, I was surprised to find that A. Hyatt Verrill in "Shell Collector's Handbook" says 'Philippines'; Walter F. Webb in his "Handbook for Shell Collectors" says 'Indian Ocean, Red Sea and elsewhere'; Joyce Allen in "Cowry Shells of World Seas" is closer when she says 'Indian Province'.

According to Webb's "Handbook", some varieties are: albonitens Melville from the Persian Gulf, obtusa Perry from Mauritius, theriaca Melville and syringa Melville from the Red Sea. Average size of these shells in my collection is 2¼ to 3½ inches.

As a closing thought, it would be interesting to know how many more variations are found in this species.

Ed.:A.D'A

LIBRARY LISTINGS are gradually being completed. Our librarian will have copies of Part II available for attending members beginning with our next meeting.

QUEENSLAND LITTORAL SOCIETY FORMED

(The following excerpts are from a letter appearing in the summer issue (vol. 3, no. 3) of the "Underwater Naturalist", a publication of the American Littoral Society, Sandy Hook Marine Laboratory, Highlands, N. J.)

I am pleased to announce that since the 19th of May (1965) a Queensland Littoral Society has existed. Most of our 35 members are University of Queensland graduates and staff, students, and CSIRO research workers. On every weekend since our formation our divers have succeeded in collecting marine specimens for research projects of the various Queensland University departments. . .

We hope that we will be able to expand into an Australian Littoral Society by January 1966, although this is perhaps wildly idealistic . . . A strong Society dedicated to promoting interest and participation in marine research is needed urgently, for the reefs within 150 miles of Australia's major cities are in serious danger of being "speared out".

(We hope) that this may lead to the formation in many countries of Littoral Societies dedicated to the study and conservation of marine life.

Edward J. Hegerl
University of Queensland
St. Lucia, Brisbane, Australia

PUBLICATIONS:

THE OYSTERS OF LOCMARIAQUER

By Eleanor Clark. Pantheon Books, New York, 1964. 203 pages, illustrations. $4.95.

The OYSTERS OF LOCMARIAQUER will be enjoyed by readers who have not the slightest interest in oysters (except to savor them), as well as those who like marine biology. It is a social document, and a graceful essay full of legends and stories of the people of a richly interesting part of Europe.

C.P.I.

(The above is an excerpt from a review that appeared in SEA FRONTIERS, vol. 11, no. 6, publication of the International Oceanographic Foundation, Rickenbacker Causeway, Virginia Key, Miami, Florida 33149.)

PUNCH, Feb. 21, 1962: OUR MAN IN AMERICA -- P. G. Wodehouse

It is always a red-letter day for us in the U. S. A. when the annual income tax form comes in, for we love to give the Government of our plenty. But we do find ourselves agreeing with Senator Byrd of Virginia that the dear chaps ought to be a little more careful what they spend it on. Quite a lot of what I made last year by the sweat of my b. will, it appears, go toward studying ways of using shellcracker sunfish to control snails, and I would much rather they earmarked my money for something else. I can't see why snails need controlling. I have met them in my garden from time to time and found them civil and respectful, not a bit the type to buy bombs and start trying to overthrow the Government with violence. And how do you control a snail, anyway? I have put the question to shellcracker sunfish of my acquaintance, and they all tell me they haven't the foggiest . . .

(C. A. S.)

JANUARY, 1966, SUPPLEMENT TO ROSTER OF NEW YORK SHELL CLUB

We welcome these members who joined us in 1965, and bring you to date on address changes received since our January, 1965, supplement:

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NEW YORK SHELL CLUB NOTES No.119 Feb.1966

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available @ 25¢ postpaid per single copy, from librarian. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor.

Please notify Corresponding Secretary of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month,*September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY *

NEXT MEETING: SUNDAY, MARCH 13th, 1966, at 2:00 P. M.

PROGRAM: COLLECTING IN THE WEST INDIES (with color slides)
by Dr. Joseph P. E. Morrison, Associate Curator of Mollusks, U. S. National Museum, Washington, D. C.

THE GENUS VIANA IN CUBA (illustrated)
by M. Karl Jacobson

SHELL-OF-THE-MONTH by Dorothy Raeihle

NOTICE: With the incorporation of the New York Shell Club last year the month of the annual meeting and election of officers was automatically changed from February to June, as June 1965 was the first meeting of the New York Shell Club Incorporated.

As has been the custom, the nominating committee is composed of the past presidents of our Club. Members wishing to make a nomination for the forthcoming election of officers to serve beginning June, 1966 should contact the committee chairman, Mr. M. K. Jacobson, 455 Beach 139th St., Rockaway Beach, New York 11694.

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*EXCEPTION TO SCHEDULE: We will not meet at the Museum in April, 1966. Instead, we will hold a "Shell-Social" on Sunday, April 17th, at the Broadway Dance Studio (courtesy of the Jensens), 31-08 Broadway, Astoria, Queens, New York. Bargain tables, entertainment, an auction, food! (See next page.)

CONCERNING OUR APRIL SHELL-SOCIAL

Arrangements are well under way. Jane Zager of the NYSC and GSSC has donated over 100 specimens, all nicely packaged and with good data. The Jensens are thinning their collection by donating many fine items. Here is your chance to find a good home for those excellent duplicates and "extras" which are just taking up needed space in your collection --- Bring them in to the March meeting!

Plans have been made for a caterer to serve a delicious buffet. However, we do need a few volunteers, as we had at our auction two years ago, to bake some more of that delicious cake (because we know you're coming!). Will our volunteer pastry chefs please contact Dorothy Jensen so we'll know how to figure?

G. R.

SHELL SHOW: March 19-20, Beaumont, Texas. The Gulf Coast Shell Club will hold their 4th Annual Shell Show at the Longfellow School, 3395 Harrison Street (Freeway-Interstate 10).

IN A PAPER communicated to the editor Mr. Vincent Cusumano has gone into the subject of cleaning and polishing shells, a matter which, like so many novices, he first encountered in the pages of Walter F. Webb's "Handbook for Shell Collectors". Mr. Cusumano's experiences, sad to relate, are very far from an isolated occurrence, even at this date, among shell enthusiasts. My personal experience has been to be the recipient, either by purchase or exchange, of specimens which (to quote) "have been put through the beauty treatment". Dealers especially, in the interest of realizing a few more dollars on the sale of a rare or deep water shell, will "doctor" a specimen by buffing or polishing dull or eroded surfaces, file and polish broken lip edges, and otherwise contribute to the loss of value for science that unusual and dredged material may have.

Mr. Vincent Cusumano's communication follows:

A WARNING TO NOVICES, BEGINNERS AND SHELL COLLECTORS

The use of muriatic acid as a method of cleaning and polishing shells can prove to be very damaging and costly to your shells. Some collectors like to have very glossy shells so they employ the hot muriatic acid treatment explained in the "Handbook for Shell Collectors". I went through this experience and so I have first-hand knowledge of the results. It is sad to realize eventually how bad such shells really look. Although this manufactured shine cannot easily be detected on Cypraea and Oliva, for instance, on other shells the fake surface is very obvious. The entire passage on the cleaning of shells (page 264) in the "Handbook" has had a bad effect on the shell collecting hobby.

About the best instructions I've seen so far on the way to clean and prepare shells for a collection is to be found in the booklet "How to Collect Shells", a symposium published by the American Malacological Union.*

(Ed.-A.D'A.)

*Note: "How to Collect Shells" is temporarily out of print. A third edition is being readied for the presses. As soon as we receive word we'll let you know when, where, and for how much you may obtain the new revised edition.

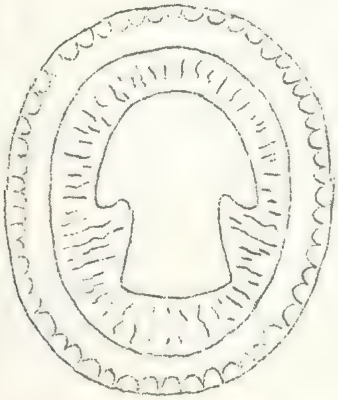
SHELL(S)-OF-THE-MONTH -- TWO LIMPETS

By William E. Old, Jr.

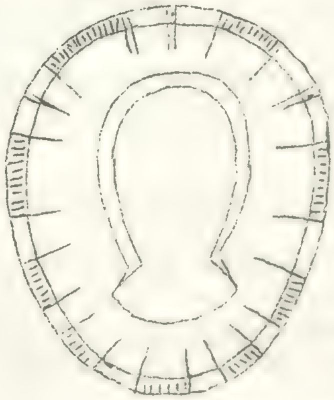
Ever since I became interested in shells, that large group known collectively as "limpets" has had a particular appeal to me. Although most "limpets" have a patelliform shape and superficially resemble one another, each species has its own characteristics. All limpets are herbivores and roam over the rocks or other hard substrates in search of their food, algae. The homing instinct has been noted in many species. Regardless of how far they travel, they return to the same resting place each evening. In time, the resting places of the larger species of *Patella* become smooth and form slight depressions in the rock.

The true limpets belong to two families -- the Fissurellidae, many species of which bear an opening in the apex of the shell, and the Patellidae, containing *Patella*, *Acmaea*, *Cellana*, and allies. Both *Hemitoma* and *Clypidina* discussed below are imperforate genera placed in the family Fissurellidae.

In 1953, I was asked to sort out the shell collection at the Norfolk Museum of Arts and Sciences. They wanted to restrict their collection to species occurring on the local coast. Part of the unlabeled accumulation was a "sea captain's" collection, most of which evidently came from Ceylon. The "rejects" were given to me, but, since I had no interest in data-less shells, they were not kept. The exception was four limpets with which I was unfamiliar. These possessed a very unusual muscle scar, resembling an arrowhead. They were placed in the back of a drawer and forgotten until the appearance of Sally Kaicher's "Indo - Pacific Sea Shells" in 1956. Perusing an issue, I came across a figure labeled *Clypidina notata* Linné. The four shells were located and matched the figure. "Ceylon and India" were cited as the range of the species. Later a specimen with definite data in Ceylon was received from Mrs. Margaret Teskey. Being offered some Ceylonese shells, I sent a sketch of this species, and back came a packet containing 18 specimens.



Clypidina notata L.



Acmaea bombayana E. A. Smith

Like the West Indian *Hemitoma octoradiata* Gmelin, *Clypidina notata* L. is evidently "colonial", and plentiful where it occurs. I later learned that the species abounds on the island of Java. Stan Levine has received series of shells from there, and the collections in the American Mu-

seum of Natural History and the Museum of Comparative Zoology contain several sets of specimens from Java. In the past this species has been erroneously cited from the "West Indies". This may have been due to misinterpretation of figures when comparing the West Indian Hemitoma octoradiata with the literature. Beachworn specimens of the West Indian shell bear a resemblance to the Asiatic species.

While processing a shipment of shells from Bombay, India, a year ago, I noticed three limpets that had been identified as Cellana rota Gmelin. The interior of one of them lacked the metallic glaze that is characteristic of the genus Cellana. This specimen has a bluish-white porcellaneous interior as in Acmaea and particularly in Collisella, most species of which occur in Californian and Japanese waters. The muscle scar is a rich chocolate brown and is in the shape of a signet ring. There are important anatomical differences between the animals of the genera Acmaea and Cellana, but we had received only the cleaned shells -- no soft parts.

Sometime later, in a volume of the "Proceedings of the Malacological Society of London", I came across figures and the description of Acmaea bombayana by E. A. Smith. A check proved it identical with our specimen and a sketch dispatched to Bombay (as in the case of Clypidina a few years earlier) brought more specimens.

A quotation from the late Dr. Barbour seems appropriate: "It is the unexpected find which provides the spice and savory for the day-in-day-out manner of life of the average museum curator."

Literature Cited:

Barbour, T. 1946. "A Naturalist's Scrapbook", Cambridge, Mass.

Kaicher, S. D. 1956. "Indo Pacific Sea Shells" no. 4, Washington.

Smith, E. A. 1911. "Description of a New Species of Acmaea from Bombay", Proc. Malacol. Soc. London, vol. 9.

ARTICLES ON MOLLUSCA:

INVERTEBRATE LEARNING
Octopuses Prove Receptive to Complex Training Experiments

by Martin J. Wells. February, 1966 issue of NATURAL HISTORY* (p.34-41) illustrated with photographs and sketches. Very interesting studies of captive Octopus vulgaris Lamarck.

GRAZING MOLLUSKS IN THE WEEDS

by David Linton. March, 1966 issue of NATURAL HISTORY* (p.58-61) illustrated with a full page color plate and black and white photographs. The article describes the sea hare, Aplysia dactylomela Rang -- the herbivorous mollusk that in early days was surrounded with superstition.

* NATURAL HISTORY, The Journal of the American Museum of Natural History, Central Park West at 79th Street, New York, N. Y. 10024. Subscription $5.00 per year, 10 issues annually.

For individual issues of NATURAL HISTORY, inquire at the Museum Book Shop, near the 77th Street entrance to the Museum.

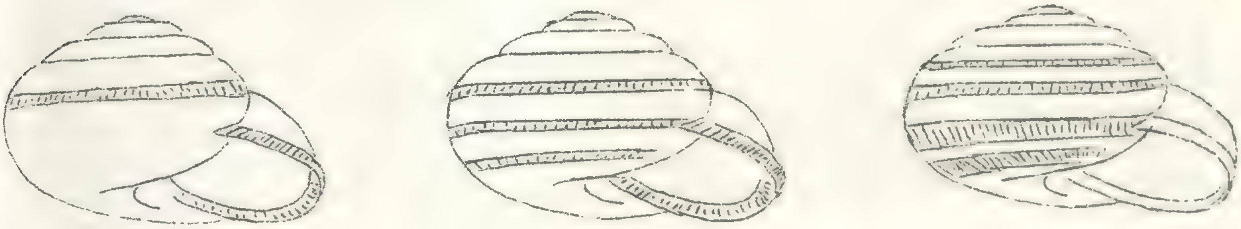
THE LOST COLONIES OF CEPEA NEMORALIS Linné IN ROCKAWAY, NEW YORK

by Morris K. Jacobson

The English garden snail is perhaps the most colorful land snail in the New York City area. However, unlike its close relative Cepea hortensis Muller it is a newcomer to our shores. (For a description and discussion of Cepea nemoralis Linné, see Jacobson and Emerson, "Shells of the New York City Area", p. 11.) It was first, as far as I could determine, reported locally by H. Prime as Tachea nemoralis in 1894 (NAUTILUS 8:69), who listed Flushing, Astoria and Lloyd's Neck as localities where it was known to occur.

In 1913 William T. Davis, the grand old naturalist from Staten Island, found it in Salem Field Cemetery in Brooklyn where I also found it a few years ago. Recently the species spread rapidly into Hollis, Malverne, and many other New York and Long Island localities, wherever brush covered areas or even lots provided sufficient cover.

In 1946 my nephew Walter Smit and I found the first Cepea colony in Rockaway in a lot on the western side of Beach 136 Street near the ocean (NAUTILUS 60:2). Subsequently we uncovered several other colonies, five in all, on undeveloped building lots which have since been covered by dwellings. The colonies of Cepea have of course disappeared. However, a few fugitives from each of these colonies were transferred purposely to my back yard, where they have since flourished well, at least until the recent drought.



Cepea nemoralis Linné

These colonies must have descended from specimens accidentally introduced into sandy Rockaway Beach when top soil and garden plants were imported from farms and nurseries on Long Island. In several cases there was apparently only one gravid individual who, alone on a lot isolated by street paving and built-up areas, founded a colony that, because of this isolation, became completely homogeneous. Thus the colony on the southwest corner of Beach 139 Street and Newport Avenue was made up exclusively of reddish specimens (the variety sometimes called rubella) with a single central brownish band; and the colony on the south side of Neponsit Avenue near Beach 145 Street consisted generally of somewhat dwarfed, yellow shells (variety libella) without bands.

For historic reasons it might be of value to list and describe briefly

A Note on
THE FLORIDA FIGHTING CONCH, STROMBUS ALATUS Gmelin
by Dorothy Raeihle

In the "New York Times" of Sunday, January 30, 1966 there was a very nice article by John Durant datelined "Sanibel". The tone of the writer revealed that the Islands of Captiva and Sanibel had made their mark -- the lure of the beaches, the shells, the shows. We were reading along, pleased at the general accuracy of the reporting on the mollusks of the area, when we came to this paragraph:

> "The Florida fighting conch, a popular favorite that is commonly found on these shores, is as ferocious as its name implies, although it moves as slowly as any snail and is only four inches long at best. It is carnivorous and feeds on bivalves."

Here we have a myth that persists. For too many years it was simply taken for granted that the *Strombus* were "ferocious" and "carnivorous". Certainly this was not from observation -- most likely it was a lumping with the general run of Florida's marine gastropods which *are* carnivores: *Pleuroploca*, *Fasciolaria*, *Busycon*, *Melongena*, etc. Earlier shell books designate the stromb family as "active and predatory", with the mollusk of the "Times" article referred to as either *Strombus pugilis* Linne or *Strombus pugilis alatus* Gmelin. Somewhere between 1951 and 1954 (when Abbott's AMERICAN SEASHELLS was published) the matter was resolved: the "Florida Fighting Conch" we find on Florida's Gulf coast is *Strombus alatus* Gmelin (range: South Carolina to both sides of Florida and to Texas); the more spinose form of the West Indies and Southeast Florida is *Strombus pugulis* Linné.[1] So much for the shell's form.

The "fighting" conch? *Strombus* does not have a broad-based creeping foot. Instead it is quite narrow and comparatively short, giving such a small area for purchase that it seems barely sufficient to sustain the mollusk's weight as it clings in a vertical position. *Strombus* compensates by using its ungulate (claw-shaped) operculum as a crutch. The mollusk extends its foot, digs the tip of the operculum into the sand, then contracts the foot muscles, the action resulting in an ungainly leap forward. Frequently the tip of the operculum is broken off when it strikes (for instance) a rock. When *Strombus* is in its natural habitat the advance is generally somewhat leisurely, but frequently may be seen moving along at quite a good pace. However, if stranded by the tide or picked up by a sheller the action becomes rather frantic, the foot with its pointed operculum flailing around seeking leverage in the animal's attempt to return to the water. It is this high activity that is most often observed and undoubtedly the reason why the mollusk was called "the Fighting Conch" -- when in reality the animal's activity is merely aimed toward regaining its natural habitat, for its survival. Of three specimens of *Strombus alatus* Gmelin collected last November on Florida's west coast, one did not quiet down in the confines of an aquarium and so was returned to its natural habitat. The other two adapted to captivity, though in the first few weeks would "panic" during the moment their tank was drained empty preparatory to a change of water, or when they were handled briefly.

"Carnivorous"? Our first information to the contrary came in a 1960 report by Dr. Robert Robertson of the Academy of Natural Sciences of Philadelphia. Referring to *Strombus gigas*, he wrote: "Despite many statements

to the contrary in recent American books on shells, Strombus is a specialized herbivore, feeding on very delicate seaweeds (algae) or swallowing sand containing dead plant material. Very small animals are occasionally swallowed but are not digested."[2] Strombus gigas' herbivorous diet was again recorded in an article published in 1964 reporting work done by marine biologists of the University of Puerto Rico.[3] Our two specimens of Strombus alatus feed on the local algaes; one has added new growth. In the same tank are small carnivorous species feeding on live Mytilus edulis, Brachidontes exustus and Batillaria minima, and on opened bivalves. We have watched closely as the tip of Strombus' thick proboscis explores for food, and have seen it withdraw quickly when it chanced to touch bivalve meat. We have watched its radula rasp minute algae from the wall of the aquarium, bypassing the egg cases deposited there by other species.

"Predatory?" The half dozen and more small species of gastropods and bivalves living in the same tank have been undisturbed by Strombus these three months. Instead, Nassarius climbs Strombus' shell and deposits egg cases which are subsequently eaten by Batillaria, the traffic of the small gastropods leaving Strombus undisturbed.

Literature cited:

AMERICAN SEASHELLS (D. Van Nostrand, 1954) by Dr. R. Tucker Abbott, Pilsbry Chair of Malacology, Academy of Natural Sciences of Philadelphia.

THE NATURAL HISTORY OF SOME MARINE MOLLUSKS IN THE BAHAMA ISLANDS ("Proceedings of the Philadelphia Shell Club" Vol. 1, No. 5, 1959-60) by Dr. Robert Robertson, Assistant Curator of Mollusks, Academy of Natural Sciences of Philadelphia.

THE HABITS OF THE QUEEN CONCH ("Sea Frontiers", vol. 10, no. 4, Sept. 1964, International Oceanographic Foundation, Miami, Florida 33149) by John Randall, Institute of Marine Biology, University of Puerto Rico, Mayaguez, Puerto Rico.

WE WELCOME THESE NEW MEMBERS:

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Mr. Martin Atkins, 164-03 89th Avenue, Jamaica, N. Y. 11432
Mr. and Mrs. Stuart Cragin, Pheasant Lane, Greenwich, Connecticut
Dr. Maria L. Falter, 69-45 108th Street, Forest Hills, New York 11375
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Miss Marcia Rebbo, 22-63 37th Street, Astoria, New York 11105
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Mrs. Roman von Elsky, 6438 S. W. 27th Street, Miami, Florida
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Please note these changes in address:

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NEW YORK SHELL CLUB NOTES No.120 March 1966

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Please notify Corresponding Secretary of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY, with the following exception:

NEXT MEETING: SUNDAY, APRIL 17, 1966, at 2:00 P. M.
THE PLACE: BROADWAY DANCE STUDIO (Tel.: AS.4-1503)
31-08 BROADWAY
ASTORIA, QUEENS, N. Y. (Directions below:)

PROGRAM: US 2 ON U. S. 1. A color slide presentation by Jerry Steele, with taped accompaniment.

*AUCTION OF FINE SHELLS

**TABLES OF SHELLS ALREADY VALUED

THE COLORFUL CUTTLE. Motion picture film in color.

REFRESHMENTS

BUFFET SUPPER

Our members Dorothy and Norman Jensen have again generously donated the use of their Broadway Dance Studio, this time for the New York Shell Club's first social event on April 17th. Only 20 minutes from Times Square, the location is very conveniently reached by B. M. T. subway, ASTORIA line to the BROADWAY stop, which is the 3rd stop beyond Queensboro Plaza. (Transfer from the I. R. T. Flushing line to the B. M. T. ASTORIA train may be made at Queensboro Plaza. The nearest station on the Independent Line is the local (GG) stop at Steinway Street and Broadway. From this point you may either take a bus or walk the 8 blocks in a northwesterly direction up Broadway to 31st Street.) The studio is on the second floor of the Household Finance Building (HFC), corner of 31st

and Broadway, which you will see as you exit from the B. M. T. station at BROADWAY.

By car: Queensboro Bridge to Northern Blvd. to 31st Street, left on 31st Street (under the El) to Broadway. Or: Triboro Bridge to Queens, take the first exit in Queens and turn right under the Elevated (it's in sight as you exit) along 31st Street to Broadway. From Long Island: Grand Central Parkway to the last exit before the Triboro Bridge, along Astoria Blvd a short distance to 31st Street, left under that same El to Broadway. From other areas such as Queens and Brooklyn check your map and you will see that Queens Blvd., Roosevelt Ave. and Northern Blvd. all intersect Broadway east of 31st Street. Chart your course and come! You'll be so glad you did!

*Among the prizes to be auctioned are three Cones donated by Dr. Henry Coomans, who collected them in the Netherlands Antilles. They are: one 31 mm. specimen of the much desired Conus aurantius from Curaçao and two specimens of the desirable Conus columba. The Caribbean aurantius is rare; columba has been so little collected that a popular price catalog notes "no information". Other prizes? -- Spondylus aurantius, Epitonium scalare, Thatcheria mirabilis, Argonauta, Guildfordia, etc., etc. and cetera. There are many shells from the collection of Miss Mabel Bender that we cannot list here.

**The tables will be filled with a variety ranging from common to uncommon, good to fine. Mr. and Mrs. Seamon have donated a number of shells from Hawaii, a location not many of us can list; Mrs. Zager has supplied us with well over a hundred specimens with excellent data, mostly from the Gulf of California; Mrs. King has donated some specimens from Tobago; Mr. and Mrs. Jensen are contributing some beautiful specimens they collected in Eleuthera, among them Strombus costatus, as well as colorful Pecten opercularis from Europe and P. pallium from the Philippines. John Root of West Palm Beach has sent a box of assorted species including some Florida Liguus, and marine fossils. We know that other donations have been made and that others are pledged, but this writer does not have the details at this time.

Those of you who are planning to bring your donations of shells and/or literature etc. directly to the studio, whether for auction or for table, are requested that you have the items there before 2:00 PM -- say, by 1:45. The studio will be open around 1:00 PM and a committee will be there to receive them.

Cones, Cowries, Pectens, Murex, Strombus, Ostrea, Astraea -- come early so that you can look them over before the action starts.

At the end of the afternoon refreshments will be served before the buffet supper of roast beef, ham and cheese, turkey, salads and incidentals. Our own volunteers are bringing homemade cakes for dessert -- and we'd like to hear from three or four more of our talented pastry chefs. (Get in touch with Dorothy Jensen?) And of course there'll be coffee with it.

Nick Katsaras is donating a door prize, Veronica Johns is donating another. There may be more -- we don't know just what surprises are being planned by the committee!

As decided at our last meetings, guests will be welcome on payment of dues ($3) entitling them to full membership for one year.

DR. J. P. E. MORRISON GUEST SPEAKER

At our March meeting Dr. J. P. E. Morrison, Associate Curator of Mollusks, U. S. National Museum, gave us a comprehensive and enlightening presentation based on his recent work in the outer Caribbean Islands. Last year Dr. Morrison was a member of a team surveying the fauna of Dominica, and much of his work there was concerned with the determination of which land snails are endemic and which were introduced. He has also worked in St. Johns, St. Croix and other islands in the chain.

After "locating" us in the islands with some beautiful tropical scenery he showed us in detail the ecological stations of the various mollusks that he found living all the way from the littoral zone to the trees on the hills.

One of the many interesting species pictured was *Hipponix antiquatus* -- which the collector invariably finds with eroded nucleus. He showed us macrophotos of newly hatched specimens clinging to an adult shell, their perfect nuclei looking exactly like *Nerita*. Here was a perfect example of the difficulty involved in identifying some of the very minute shells!

Another series of slides illustrated his study of *Siphonaria pectinata* and *S. alternata*. In St. Thomas Harbor on rocks at the low water level were *Siphonaria pectinata* with their egg masses -- slender, white, jelly strings deposited in an overlapping circle approximately the same circumference as the adult shell. They were at the level where they would be constantly wet, and would eventually hatch hundreds of swimming larvae. Dr. Morrison discussed this species' introduction to the Western Atlantic and subsequent spread since it was found, in 1872, on the hull of a ship wrecked at St. Augustine and appropriately named *S. naufragum*. This name was used only until it was realized that this *Siphonaria* was an introduced species -- *S. pectinata* of the Eastern Atlantic.

Next were slides taken at Key West of the species native to the Western Atlantic, *Siphonaria alternata*, which lives rather high in the intertidal zone. Its egg cases, which are in the shape of little, curved, jelly sausages, are constructed to withstand exposure between tides, and hatch crawling young. Using macrophotos, Dr. Morrison pointed out the right-handed nucleus of *S. alternata*, remarking that other species of *Siphonaria* have left-handed nuclei.

There was an amazing procession of species from the sea into the hills, from the limpet-like *Hipponix* to the arboreal *Helicid rhodostoma* which grows a spike on its shell -- apparently to discourage the birds from feeding on it. The method of presentation was an extremely effective way to demonstrate field collecting with the aid of color slides. We all learned much, and greatly appreciate Dr. Morrison's generosity in making the special trip from Washington to visit us.

* * *

(Editor's note: In the above report we refer to "macrophotographs" of tiny specimens. As some of you have been confused by the prefix "macro-" (instead of "micro-"), George Raeihle defines the term for us:

A macrophotograph is one in which the image on the film is 2X to 25X the actual size of the object being photographed. For example: a 1/8" high specimen photographed at 5X results in a 5/8" high image on the negative.

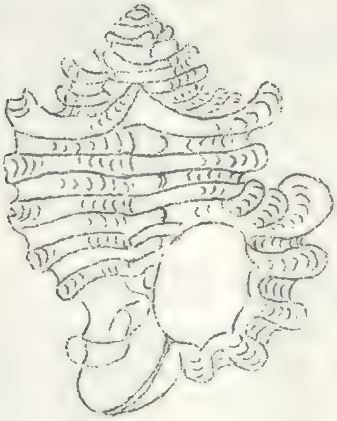
A microphotograph is one in which the resulting image on the negative is 25 or more times the actual size of the object being photographed.)

FAVARTIA TETRAGONA Broderip

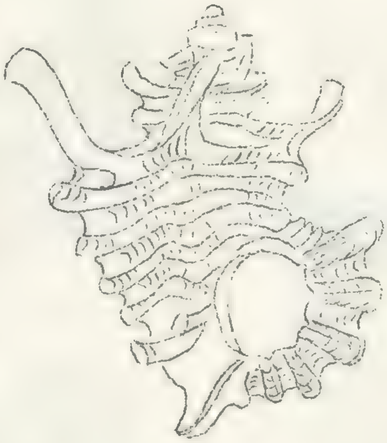
by Anthony D'Attilio

This small muricid is of wide distribution in the Indo-Pacific, occurring from Zanzibar on the coast of east Africa, eastward to Japan, and in the south Pacific. As might be expected of a species occurring over such an extended range it displays some amount of conchological variation. The strongly sculptured shell is encircled with cords which become most prominent on the four high varices (see fig. 1). The usual variation consists of the extent to which the terminations of the cords on a varix are either bluntly rounded or projecting as short, spiny processes. The front of these spiny processes are transversely ornamented with numerous lamellae. The multitude of small box-like excavations resulting from this crossing of the lamellae on the spiral sculpture has been noted to be characteristic not only of *tetragona*, the type of *Favartia*, but also of numerous other species that may be referred to this genus.

Of particular interest has been the recent finding on the Island of Malaita, British Solomons, of a number of specimens of *F. tetragona* in which the spines on the shoulder are of comparatively much greater length than has heretofor been associated with this species (see fig. 2). These long-spined individuals are apparently found living together with the usual form of this species comparable to specimens found elsewhere throughout the range. May it be supposed that in this population of *F. tetragona* a mutant gene for long spines might be achieving some success and demonstrating to us at least one element of the process of evolution at work?



Zanzibar
fig. 1, 2x



Solomons
fig. 2, 2x

Favartia tetragona

Although *Favartia tetragona* is white in color, some related species from the Indo-Pacific are shades of pink to rose. The operculum is similar to *Murex* species of the subfamily Muricinae, i. e. the apex is terminal with expanding concentric ridges centered on the apex. It may be observed that, based on present knowledge, *F. tetragona* appears to be the largest species in the genus.

ON LAND SHELLS FROM THE MAYAN RUINS IN YUCATÁN, COLLECTED BY EDWARD COWLES.

by Morris K. Jacobson

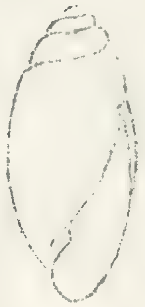
This report is based upon a small collection of shells recently made by Edward Cowles at the Mayan ruins of Yucatán near the city of Mérida, Mexico. Mr. Cowles picked up these shells while on a sight-seeing tour of these world-famous ruins.

The shells reported here are for the most part easy to identify, since most of them are from genera that have only a single species in Yucatán. It is hoped that the accompanying outline figures by Anthony D'Attilio will enable any collector in that area to name his finds easily.

The non-marine mollusks of Yucatán have been magnificently reported on by Bequaert & Clench (1933, 1936, 1938). Other students who have worked here and written on the shells of the area are H. Burrington Baker (1922), and, most recently, Harold Harry (1950). In addition, many of the species here discussed are also referred to by E. von Martens (1890-1901), Henry A. Pilsbry (1904) and Bartsch & Morrison (1942). Most of the shells were originally named by Pfeiffer and Morelet, but not always from shells collected in Yucatán.

Family OLEACINIDAE

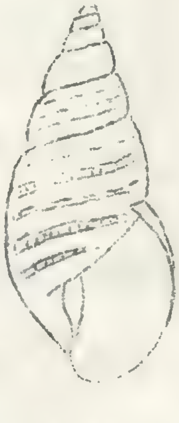
Streptostyla ventricosula (Morelet). Mr. Cowles found one bleached fragment with the spire missing at Kabah. However, it undoubtedly can be referred to this species, since the only other Streptostyla from the region is S. meridana (Morelet) which has a smaller, narrower shell. The genus Streptostyla is distinguished most easily from the related genus Euglandina by having the columella twisted and not truncated (cut off sharply) at the base. There are two species of the latter genus reported from Yucatán, but none appeared in the present collection. This species has also been reported from Guatemala and Costa Rica.



Streptostyla ventricosula

Family BULIMILIDAE

Drymaeus serperastrum (Say). The single specimen from Kabah is faded and bleached, but readily recognizable by its large size (34 mm) and characteristic banding. This is a widely ranging species, occurring from eastern and central Mexico to Yucatán.



Drymaeus serperastrum

Family UROCOPTIDAE

Brachypodella speluncae (Pfeiffer). The single specimen from Chichén Itzá cannot be mistaken for anything else, since this is the only urocoptid reported from the region. According to Pilsbry (1904, p.70) it ranges from northern Guatemala to Yucatán, where it is a common species. Harold Harry (p.16) finds the species to be common, but

the distribution is spotty. The single shell in the present collection is small enough to belong to the variety dubia of Pilsbry, described from Labna.

Family POMATIASIDAE

Choanopoma largillierti (Pfeiffer). Numerous specimens from Kabah and Chichén Itzá. Bequaert and Clench call this "one of the most common snails of Yucatán, and apparently restricted to the peninsula" (p.540). The fresh shell is rich brown in color with darker brown spots arranged in axial rows. This species is distinguished from the much rarer C. gaigei Bequaert & Clench by having a series of regularly spaced, white, tooth-like projections all along the top of each whorl. In addition largillierti has the aperture evenly rounded, whereas in gaigei there is a distinct, rounded depression at the parietal area.

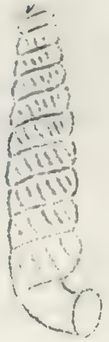
Family CYCLOPHORIDAE

Neocyclotus dysoni berendti (Pfeiffer). 4 specimens from Kabah, 2 from Chichén Itzá. This shell also is easily named since it, too, is the only representative of its genus in the region. It is, however, not easily distinguished from N. dysoni dysoni (Pfeiffer) which ranges widely throughout Central America and has been divided into numerous more or less valid subspecies. The fresh shell is covered by a periostracum which is warmly orange-brown in color, in some specimens with faint spiral lines. Weathered specimens turn alabaster white.

Family HELICINIDAE

Helicina arenicola (Morelet). 2 specimens from Kabah, one with color. This species appears as Oligyra arenicola in Bequaert & Clench (p.543), but, as Harry explains (p.29), it is largely a matter of opinion whether Oligyra should be a full genus or merely a subgenus of Helicina. H. B. Baker (1922) raised Oligyra (type: H. orbiculata Say) to full genus status because of radular distinctions. Contrary to the opinion of Bequaert and Clench, the shell, according to Harry, is also found in Guatemala.

Lucidella lirata (Pfeiffer). Three dead specimens from Kabah. This is the only Lucidella found in Yucatán. It is a tiny shell, about 3 mm in diameter, but strong, and vigorously marked on the spire by spiral cords over the surface. It ranges widely from Vera Cruz, Mexico to Panama, and has even been recorded from Venezuela.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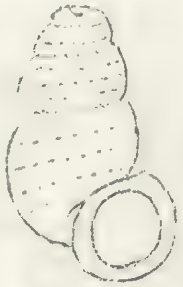
Brachypodella speluncae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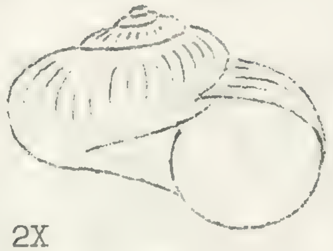
Choanopoma largillierti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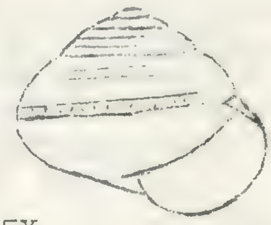
Neocyclotus dysoni berendti


5X

Helicina arenicola

11X

Lucidella lirata

It might be of interest to note that, of the seven species listed, four (the Pomatiasidae, the Cyclophoridae and the two Helicinidae) belong to the more primitive land operculates -- actually, land prosobranchs. The Oleacinidae, Bulimilidae, and Urocoptidae are true pulmonates with the sexes united in each individual. All the species are herbivores or at least fungi or algivores except the oleacinid which is a carnivorous predator, feeding mainly on other mollusks.

I want to express my thanks to Ed Cowles for taking the trouble of making this collection. The shells here discussed will all be deposited in the collection of the American Museum of Natural History.

THE GRUNZIG COLLECTION

by William E. Old Jr.

Many of us remember well the late B. Frank Grunzig, who often brought rare or choice shells to display at club meetings. He was also an habitue of the Katsaras auctions. He would also take displays of shells to schools to illustrate his talks to children. Personally, I recall that he made occasional visits to the museum to see certain shells, or to bring shells for identification. Frequently these were shells he had promised to have identified for contacts overseas. Having an avid interest in molluscan literature, he never failed to inquire about recent publications. He frequently loaned shells to museums to assist in their research -- among others, he provided specimens for the description of Latiaxis fearnleyi.

Last year Mr. Grunzig was stricken with a brain tumor and his life could not be saved. It was his wish that Anthony D'Attilio and I handle the disposal of his shells for Mrs. Grunzig. We went to his home in Avenel one hot Saturday last August. The shells were kept in two rooms on the second floor. One room contained large shells arranged on shelves overhung with sheet plastic. The second room contained the collection in stacks of cardboard cartons. Inside each carton the shells were carefully housed in paper trays. Each lot was accompanied by the original label -- often in the handwriting of Teramachi of Japan, Jennings of Fiji, or Jack Fearnley of Queensland.

Muricidae and Volutidae were his specialities. Among his shells were Cypraea aurantium, Voluta bednalli, Amoria keatsiana, Murex bednalli, hirasei, and elongatus, Strombus goliath and the largest example of Aulica nobilis I have ever seen. Many species were represented by suites or growth series, such as Megalotractus and Cymbium amphorus, specimens of which ranged in size from tiny juveniles to enormous adults.

The museum obtained a number of specimens which have been incorporated into the study collection. Nick Katsaras agreed to arrange an auction and selected a large number of showy and choice shells for the purpose. The auction was held on March 6, 1966, and was appreciated by all participants.

SHELLS ON T V

The shells exhibited and discussed on the "Captain Kangaroo" program seen locally on March 22nd were from the collection of NYSC member DuPuy Greer. Mr. Greer does much to acquaint "inlanders" with shells, giving talks and displaying shells at schools and hospitals.

YOUR OBSERVATIONS ARE WANTED

At our February meeting we again asked for your observations of mollusks, their shells, their habits and their habitats. We know that you have items and studies to contribute -- won't you send them in? Whether they be as short as one sentence or run to pages, let us have them. The feeling that "It's not worth mentioning," or "I'm just an amateur," keeps too much information out of circulation. Any study is made up of small bits linked together, and your mite may be very important!

In this vein of thought, the writer offers the following, not knowing whether or not it is worth an historical continental:

In August of 1962 I was present when four Cypraea cervus were brought in from the Bear Cut area at Miami. Seeing them with mantles extended, two animals appeared "black", one tan, and one a rusty color. I asked the collector to let me see the bodies when he cleaned the shells, and he did. Spreading the mantles on a dish, I examined them with a 7X lens. Each mantle contained color flecks of red, tan, and black. They could be compared to half-tone dots and it was the predominance of one or another of the colors, varying in the specimens, that gave the long-range impression of solid "black", tan, or rusty-colored flesh. . . .

About three weeks ago we received a "Newsletter" from the American Littoral Society which has its headquarters at U. S. Fish and Wildlife's Sandy Hook Marine Laboratory. Their quarterly publication, the "Underwater Naturalist", is available by subscription or through our club's library. We quote from their "Newsletter":

"YOU TOO! One of our most difficult tasks is getting our members, whether anglers, divers or beachcombers, to send us their observations. To encourage you we are initiating, in the Underwater Naturalist now in production, a column conducted by Robert Wicklund. In his first column Bob tells us of several of his observations and invites YOU to send in some of your own. Anything to do with the behavior and incidence of marine creatures...however fragmentary! He may write you for more details, or ask you to make further observations. Or your contribution may stand as is. If one of your observations comes to mind as you read this, sit down and write to him. Now! (Bob Wicklund, American Littoral Society, Highlands, N. J.)"

So you see -- the amateur is important!

dr

DUES - DUES - DUES

Has your dues-date slipped by unnoticed? Please check your membership card. . . .

WELCOME TO THESE MEMBERS WHO HAVE RECENTLY JOINED US:

Mr. and Mrs. Cope, 44 East 67th St., New York, N. Y. 10021
Mr. Anton Falter, 6945 108th St., Forest Hills, N. Y. 11375
Miss Khaki Keany, 401 East 58th St., New York, N. Y. 10022
Mr. David Leibowitz, 2022 East 21st St., Brooklyn, N. Y. 11229
Miss Margaret Rossman, 90 Laurel Hill Terrace, New York, N. Y. 10033
Mrs. Mary Saul, c/o Police Headquarters, Jesselton, Sabah, Malaysia
Miss Wanda Szumski, 47 Driggs Avenue, Brooklyn, New York
Mr. Ernest Walton, 330 East 33rd St., New York, N. Y. 10016

NEW ADDRESS: Mr. Stanley Sokoloff, 392 Central Park W., New York, N.Y.10025

NYSC NOTES NUMBER 121 APRIL 1966

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The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, MAY 8th, 1966, at 2:00 P. M.

PROGRAM: COSTA RICA EXPEDITION (with color slides)
by George F. and Mary Kline
FOSSIL COLLECTING IN THE ENVIRONS OF NEW YORK CITY
by Sidney Horenstein

NYSC SHELL-SOCIAL APRIL 17

Thanks are due to all our members for making our first social event a huge success: First, our thanks to Dorothy and Norman Jensen for donating the use of the studio, then heading the committee and arranging the program, and to all the volunteers who assisted in so many ways. Then to those who donated shells -- without them we wouldn't have planned the party. We wish we could thank each donor individually, but so many specimens were donated so quietly that we just don't know all the donors!

Our hostess, Dorothy Jensen, was presented with a corsage. The "flowers" were little Indo Pacific *Strombus* which, through the artistry of Bella Kudatsky, had been transformed into "rosebuds" that defied detection at any but close range.

The bulk of the many fine shells auctioned by Anthony D'Attilio were from the Bender collection. They were supplemented by generous gifts, of specimens ranging from fine to rare, made by several other of our members. All were truly appreciated, as evidenced by the lively bidding. We had fun and bargains with the variety of specimens from the other two tables, and many of us had our introduction to fossils.

There were drawings for the special prizes of 1) the Japanese editions of Kira and Habe, donated by Veronica Johns, 2) a large *Voluta magnifica* and two *Conus aurora*, donated by Nick Katsaras, and 3) a *Spondylus aurantius* given by Bill Old.

The color slide program, "US 2 on U S 1" was a review of the shelling expeditions of Jerry Steele and Grace MacDougall from Prince Edward Island to Key West; the taped accompaniment was in the form of an interview of Jerry by Norman Jensen with intervals of musical background. The film, also arranged for us by Mr. Jensen, was an excellent live study of the cephalopod *Sepia officinalis* by the Plymouth (England) Biological Laboratory. We here highly recommend it for showing at other Shell Clubs. The color film, running 14 minutes, entitled "The Colorful Cuttle" (code: 21FB338) was obtained from the International Film Bureau, Inc., 332 So. Michigan Avenue, Chicago, Ill. 60604.

The social hour with refreshments was a great success -- everyone found the time for chatting that is not afforded at our regular meetings. There followed the buffet supper which was delicious, varied, plentiful, and topped off by the irresistible creations of our pastry chefs -- shellers from A (Alice) through Z (Zoya) having disclosed additional talents.

By 7:30 P. M. the shells and food had disappeared -- so also had the happy shellers. Our thanks again to the Jensens for their hospitality.

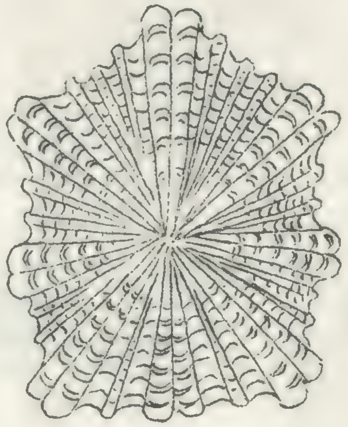
HEMITOMA OSTHEIMERAE Abbott

(Shell-of-the-Month, February 1966)

by William E. Old, Jr.

From 1952 to 1954 Mrs. Ruth Ostheimer of Philadelphia collected shells on Grand Cayman Island, West Indies. In his report on her collection Dr. R. Tucker Abbott (1958) described a new species of limpet, in the collector's honor, as Hemitoma ostheimerae.

This new species has a very attractive shell with eight raised spatulate rays emanating from the apex. The interstices are composed of lacy fenestrations. In 1961, when visiting Mrs. Dorma Coley, Dr. Henry Coomans and I were elated to find a specimen of this species in a box of miscellaneous shells which she had picked up on the beach near San Juan Airport, during a visit to Puerto Rico. Mrs. Coley's specimen measured 20 mm.+, almost equaling the size of Dr. Abbott's largest paratype.



In their monograph of the Hemitoma of the Western Atlantic, Drs. Clench and Turner (1959) considered H. ostheimerae to be the juvenile of Hemitoma emarginata Blainville. In this species the right and left margins of the shell are bent inward. Clench and Turner stated that: "This is a rather rare species and specimens are seldom taken alive. Consequently, we know nothing of its ecology. It apparently lives from just below low tide to depths of perhaps 100 fathoms." Warmke and Abbott (1961) also placed H. ostheimerae in the synonymy of Blainville's taxon.

After examining series of specimens of both taxa received at the American Museum of Natural History, Dr. Coomans and I concluded that H. ostheimerae might be distinct from H. emarginata. Our arched specimens of H. emarginata vary in size from 6.5 mm. to 34.5 mm., whereas our specimens of the "flat" H. ostheimerae range in size from 7.5 mm. to 24.5 mm. (D. Germer collection). Shells referable to nominal species H. ostheimerae Abbott are represented in the collection by specimens from Fort Lauderdale, Florida (E. Woodlock); alive from 180', Grand Bahama Bank (A. Ross); Grand Cayman Island; Barahona, Dominican Republic (D. H. Pease); San Juan, Puerto Rico (D. Coley); and St. John, Virgin Islands (M. Bird).

In addition to localities cited in "Johnsonia", our collection contains sets of H. emarginata from Fort Lauderdale, Florida (E. Woodlock); Crossing Rocks, Great Abaco, Bahamas (Henry Dodge); Grand Cayman Island; San Juan, Puerto Rico; Piedra Prieta Reef and Barahona, Dominican Republic (D. H. Pease); Hawks Nest Bay, St. John, Virgin Islands (E. Woodlock); St. Croix, Virgin Islands (G. Usticke); Klein Bonaire (N. Erwin); and two large lots from Curacao (H. Coomans).

The live specimen of H. ostheimerae, measuring 16.4 mm., was taken by Arnold Ross while diving in 180' off Grand Bahama Bank. It was, according to Ross, brought up "in a hash of coral rubble and algae, and the limpet was adhering to a rock encrusted with coraline algae." The radula

from this specimen resembles, but is not identical with, the figures of the radula of *H. emarginata* that appear in "Johnsonia".

There are several other species of arched-shelled limpets that have adapted themselves to a particular habitat. Examples are *Patella compressa* Linne from South Africa which lives on the stalks of "sea bamboo" (*Ecklonia*), and *Acmaea instabilis* Hinds from the California coast which adheres to the stalks and holdfasts of kelp. In both of these species the juveniles are flattened. The shell of *Hemitoma emarginata* is probably modified to fit a similar "host". Thus *H. ostheimerae* could be merely a *situs form* of the immature *H. emarginata* as pointed out by Clench and Turner. Or, it may occupy a separate ecological niche. As shown by the localities cited above, extensive collecting in a given locality usually yields specimens of both taxa -- an exception being the Netherlands Antilles and the Lesser Antilles. We have examined over forty specimens of *H. emarginata* from the Lower Caribbean area, but no examples referable to *H. ostheimerae*. Perhaps the final word on the status of this attractive limpet has not yet been written.

Evidently overlooked by all workers was the citation and figuring of what was apparently this shell by Schubert and Wagner (1829). They stated that they would have proposed the name *Patella octocostata* had that combination not been previously used. Dillwyn (1823) had used this taxon -- for the juvenile of *Hemitoma octoradiata* Gmelin. No locality was given.

Other authors who figured similar shells were Sowerby II (1866), Küster, Kobelt and Weinkauff (1885) a copy of Schubert and Wagner's figures, and Tryon (1890) as *Subemarginula octoradiata* of Sowerby (non Gmelin), Tryon considering the shell to be a form of *S. imbricata* A. Adams from Australia.

Dall (1903) figured a shell from the Pliocene marl of Shell Creek, Fla., which he named *Subemarginula retiporosa*. Olsson and Harbison (1953) figured and described similar specimens as *Hemitoma retiporosa* (Dall) from the Pliocene beds in St. Petersburg, Fla. Their measurements, 18.3 mm. and 22.1 mm., fall within the measurements I have taken from Recent specimens. *Hemitoma retiporosa* apparently is a precursor of *H. ostheimerae*, if not conspecific with it. Clench and Turner (1959) also placed this taxon in the synonymy of *H. emarginata* Blainville.

Literature Cited:

Abbott, R. T. 1958. Marine mollusks of Grand Cayman Island. Monogr. Acad. Nat. Sci. Philadelphia, no. 11.

Clench, Wm. J. and Ruth D. Turner 1959. Johnsonia, no. 39.

Dall, W. H. 1903. Cont. to the Tertiary of Florida. Trans. Wagner Free Inst. of Philadelphia, vol. 3, part 6.

Dillwyn, W. 1823. Index Conch.

Küster, H. C., W. Kobelt and H. C. Weinkauff, 1885. Syst. Conch. Cab. Band 6, abth. 3.

Olsson, A. A. and Anne Harbison 1953. Pliocene Mollusca of Southern Florida. Monogr. Acad. Nat. Sci. Philadelphia, no. 8.

Schubert, G. H. and J. A. Wagner 1829. Neues systematisches Conchylien-Cabinet, vol. 12.

Sowerby II, G. B. 1866. Thesaurus Conch., vol. 3.

Tryon, G. W. 1890. Manual of Conchology, vol. 12.

Warmke, G. and R. T. Abbott 1961. Caribbean Seashells.

FROM ELEUTHERAN WATERS

by Dorothy Jensen

Each trip to the island of Eleuthera, in the Bahamas, has added at least a few new species to our collection. In July of last year we made our fourth trip. We did a little more dredging than we had done on previous visits. We also spent a day collecting at Northern Eleuthera and a day on an island off the north end called Spanish Wells. Below are the additional species, found since we compiled the list which appeared in our first article (NOTES No. 108, Jan. 1965):

On rocks at the shoreline of Governours Harbor, Jerry Steele (who made a trip to Eleuthera just ahead of us) found *Lucapina sowerbii* Sowerby and *Tegula lividomaculata* C. B. Adams. She also found, in shallow water, *Arcopagia fausta* Pulteney.

We started dredging in about 8 to 10 feet of water in the harbor, and from a sand and grass area we brought up several *Aequipecten gibbus* Linné. All were quite small. In the same area and also in a little deeper water we were pleased to find three specimens of *Murex woodringi* Clench & Farfante. These, too, were small. Out just a little further, we added to our collection *Conus verrucosus* Hwass, *Conus stearnsi* Conrad, *Gastrochena hians* Gmelin, *Lyonsia beana* Orbigny, *Terebra protexta* Conrad, and a *Fenimorea* species.

On the beach near the Lighthouse, at the southern end of the island, we found several beach specimens of shells we've never yet found alive. There was *Conus mus* Hwass, *Cypraea zebra* Linné, *Sinum perspectum* Say, and single valves of *Chlamys ornata* Lamarck.

A few miles north of Governours Harbor, on and under rocks exposed at low tide, we found single specimens of *Bailya intricata* Dall and *Murex cellulosus* Conrad, and many *Nitidella ocellata* Gmelin.

Under rocks at the edge of Sweetings Pond, a large inland salt water lake, we found *Detracia bulloides* Montague. Another salt water lake near Ten Bay Beach produced beach specimens of *Anomalocardia brasiliana* Gmelin. The edge of the shore was covered with the dead shells, which were very thin and fragile.

A local fisherman gave us a *Cymatium caribbaeum* Clench & Turner that he had found near Savannah Sound. Close to that same area we discovered *Tricolia affinis affinis* C. B. Adams at the tide line on the beach. The two other species of *Tricolia* that we found were *Tricolia bella* M. Smith, dredged in shallow water in Governours Harbor, and *Tricolia thalassicola* Robertson, also brought up by the dredge, on seaweed off Spanish Wells.

Off the west side of Northern Eleuthera we dredged broken pieces of *Conus regius* Gmelin, *Lima lima* Linné, and *Lima scabra* Born. The area we worked had many dead shells and small corals.

In a very grassy section off Spanish Wells we found *Smaragdia viridis viridemaris* Maury, and *Turbo castanea* Gmelin. Off this section we saw many of the *Strombus samba* Clench being brought in by fishermen.

There is a correction to be made in my article in NOTES No. 108: The listing of *Hyalina avenacea* Deshayes should be changed to *Hyalina albolineata* Orbigny. Sorry.

Eleuthera was hit quite badly by a hurricane since our 1965 visit, so we don't know what changes we may find in 1966.

HOW FAST DOES STROMBUS GIGAS GROW?

Two professional workers have recently come to different conclusions regarding this problem, each using apparently valid scientific methods. In the Magazine UNDERSEA TECHNOLOGY (February, 1966) there is an account of the work undertaken by Professor M. L. Keith and associates at Penn State University. By using a method described as "oxygen isotope analysis of the calcium carbonate in the tip of the spines", he concluded that the "conch" attains full size in about two years. Unfortunately, the reporter of Prof. Keith's work in UT marred his account by referring to the stromb as being "the chief raw material for the cameos so familiar to visitors to southern Italy", thus nicely confusing the large helmet shell (Cassis madagascariensis) -- the real source of most cameo work -- with the conch (Strombus gigas).

In SEA FRONTIERS (September, 1964) Dr. John Randall of the Institute of Marine Biology, Puerto Rico, reported on an actual growth experiment he conducted. Measurements showed that the average growth of juvenile to subadult conchs was two inches in shell length per year, thus requiring an estimated four years for the conch to attain full growth at eight inches. This is double the time given by Prof. Keith.

Apparently these reports are of some importance since they indicate that "conch-farming" may turn out to be an economically feasible project. Every interested visitor to the Antilles returns with accounts of the vast number of conchs consumed in that area. Hence, artificial farming of the conchs may eventually have to be resorted to in order to make the succulent gastropod available for trained palates.

In examining the work of the two scientists noted above, we cannot, on the one hand, be sure that Dr. Randall actually traced the growth of individual specimens from infancy to adulthood. The term "average annual growth" which he uses is a statistical term that may overlook important factors, such as very rapid growth at some life stages and slower ones at others. The acutal observation of selected specimens from infancy to adulthood would overcome this difficulty. On the other hand, Professor Keith's work is based upon the newer nuclear isotype dating techniques which have not always proved to be reliable, especially for such short time intervals. The cause of the discrepancy in the results obtained by these two gentlemen may well lie somewhere in these areas.

Nevertheless, whether two years or four years, it may yet turn out to be profitable to farm conchs much as we farm oysters and mussels today.

. . . . MORRIS K. JACOBSON

GROWTH IN A CAPTIVE CHAETOPLEURA

The specimen of Chaetopleura apiculata Say which was exhibited as Shell-of-the-Month last September (See NOTES No. 114) is still living in our marine aquarium. On July 31st, 1965, it measured 18 mm. as it rested on the wall of the aquarium. On March 9, 1966, it measured 23 mm. -- a growth of 5 mm. in a little over seven months.

Measurements have necessarily been at irregular intervals, as the chiton must be at rest on a flat surface to insure accuracy, and we rarely find it so positioned. The maximum size for this local chiton, as given in our shell books, is one inch, or 25 mm.

. . . . DOROTHY RAEIHLE

CONCERNING CONSERVATION

On our recent vacation trip to Florida we visited with shellers of both west and east coast clubs. Everywhere we found them concerned about the lack of conservation practices and asking for help in publicizing the need for some degree of protection for their marine mollusks, and in educating the thoughtless collector.

It is paradoxical that the live mollusks, whose shells draw so many tourists to Florida, are, with few exceptions, their only wildlife attraction that is not in some way protected by conservation laws. The exceptions are the mollusks within the borders of the Everglades National Park -- where the rule is "Take only pictures. Leave nothing but your footprints." -- and a gesture in the direction of Strombus gigas. (We understand that the recent Florida legislation for the "protection" of the Queen Conch, which states that Strombus gigas may be taken only for food, has not lessened the harvest of either commercial dealers or the individual collector -- as they merely must declare the intention to use Strombus' flesh for food.)

We have a quite small booklet prepared and distributed by the Sanibel-Captiva Shell Club and published with the cooperation of the entire community. It tells how the club was founded in 1961, "fostered by the growing need for Shell Conservation and the desire to gain further knowledge about sea shells and sea life". Over 24,000 of this little "Shell Handbook -- Conservation, Collecting, Cleaning" have been distributed. Aimed generally at the beginner, it contains tips on where to shell in Sanibel and how to take care of the shells found. We reprint here its first article, which is applicable to shelling areas the world over:

CONSERVATION

"Not too long ago our beaches were literally covered with shells, and good ones, too! But nowadays real collector's items are hard to find. Our bays are still full of crawling shells but each year they are reduced in number and size. Red tides, storms, and other natural phenomena account for much of this - but altogether too often it is due to the thoughtless and wanton collector of recent years who strips bays and beaches of everything in sight.

There are many beautiful clean and empty shells tossed on our beaches. Take what you want of these, but, PLEASE, only a few live specimens. Be CAREFUL and CHOOSY. Be sure the live shell you take is the one you will want to clean and put in your collection.

A true conchologist needs only two specimens" (of a species) "for his collection, unless there are color phases, growth stages or unusual differences.

TAKE ONLY WHAT YOU CAN PROPERLY USE, CLEAN AND DISPLAY and leave the rest to grow and reproduce so that there will be shells for future generations to find and enjoy."

Amen. dr

NOMENCLATURAL NOTE

As of March 1, 1966, The Chicago Natural History Museum has restored its earlier and more familiar name of FIELD MUSEUM OF NATURAL HISTORY.

AMUPD - 19th ANNUAL MEETING

University of Washington, Seattle, Washington, June 19-22, 1966

All who are interested in the study of molluscs are invited to attend this year's annual meeting of the American Malacological Union-Pacific Division. Co-sponsored by the Pacific Northwest Shell Club and the Department of Zoology, University of Washington, the meetings will be held on the University campus and at the Pacific Science Center.

Highlights: A field trip on Sunday morning, June 19, to a rich local intertidal zone. Reception Monday evening in McMahon Hall. Annual banquet Tuesday evening at the Windjammer Restaurant overlooking the Sound.

Dormitory accommodations may be reserved for all or part of the period June 19-23. Reservation should be made by May 25 to assure availability of space and confirmation. Send request for dormitory accommodations ($3.25 per person double, $4.50 single) to: Manager, McMahon Residence Hall, University of Washington, Seattle, Washington 98105.

Registration will be Monday morning, June 19, from 9 to 12. The quoted registration fee of $6.50 ($7.00 to non-members of the AMU-PD) includes $4.00 for catered luncheons Monday and Tuesday which are optional. Check for registration fee and information as to whether or not you plan to attend the field trip should be mailed by May 1st to: Mrs. Elsie Marshall, Secretary, 2237 N. E. 175th St., Seattle, Washington 98155.

AMU - 32nd ANNUAL MEETING - AUGUST 22-26

The North Carolina Shell Club will host the 1966 meeting of the American Malacological Union to be held at the University of North Carolina at Chapel Hill. We'll give you details as soon as we receive them. Meanwhile, reserve the dates and plan to attend -- you are all invited!

NYSC WELCOMES THESE NEW MEMBERS:

Dr. J. M. Beaven, 175 West Ridgewood Ave., Ridgewood, New Jersey
Miss Mary J. Carr, 2 Washington Square Village, New York, N. Y. 10012
Mr. Jean Jacques De la Verriere, 99 MacDougall St., New York, N. Y. 10012
Mr. Paul Falk, 140-11 219th St., Laurelton, New York 11413
Mr. & Mrs. Fred Fisher, 31-51 47th St., Astoria, New York 11103
Mrs. D. Greco, 107 Cerny Place, West Islip, New York
Mr. Blaine Hunter, 126 Cedar Ave., Hackensack, New Jersey 07601
Mrs. M. K. Jacobson, 455 Beach 139th St., Rockaway Beach, N. Y. 11694
Miss Lillian Jahns, 494 Logan Street, Brooklyn, New York 11208
Miss Marilyn Lerner, 230 East 27th St., New York, New York 10016
Mrs. Stanley Levine, 34-05 12th St., Long Island City, New York 11106
Mrs. R. E. Pollard, 2135 Franklin Ave., East Meadow, L. I., New York 11554
Rochester Shell & Shore Club, c/o Mrs. James Barton, Librarian,
20 Newfield Drive, Rochester, New York 14616
Mr. & Mrs. Martin Avery Snyder, 2 Washington Sq. Village, New York,
New York 10012
Miss Laura M. Stanley, 210 Main St., New Paltz, New York 12561
Dr. Mildred J. Van Riper, 20 Whitehouse Ave., Poughkeepsie, New York 12601

* *

A CHANGE IN ADDRESS FOR:

Mr. & Mrs. Charles Bennett, 640 73rd Street-Ocean, Marathon, Florida 33050

NYSC NOTES NUMBER 122 MAY 1966

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, JUNE 12th, 1966, at 2:00 P. M.

PROGRAM: ANNUAL ELECTIONS

SPONDYLUS AND OTHER SPECIALS from the collection of Mrs. William Gaston. (Color slides) Presented by Veronica Parker Johns.

SUN, SAND, SEA AND SHELLS. A color slide presentation by George Raeihle.

ANNUAL OUTING & FIELD TRIP SATURDAY JUNE 25th

At our May meeting the members present voted to hold the annual field trip and outing on Saturday, June 25th, at Orient Beach State Park. As the low tide of 0.0 will be at 10:30 A. M., this will mean an early start for most of us -- but it's worth it. Orient Beach State Park offers the best shelling available to New Yorkers. There is both the open water of Gardiner's Bay and the protected water of the back bay, where the tide should be a bit later.

Directions: First check your road map of Long Island for Orient Beach State Park. It is located at the northeastern tip of Long Island. Using the Long Island State Parkway system to Riverhead, there pick up New York State Route 25 to Orient Beach State Park, park entrance road on your right. If you arrive at the ferry landing, turn around and go back one mile. There is but one parking lot so you'll have no trouble locating other members.

Bring lunch, dry socks, sneakers or boots, your favorite shelling tool. The bath houses should be open by June 25th, so bring your suit if you'd like a swim. No SCUBA, face masks etc. are permitted in the park waters. Come early!

- - - - - - -

Last year we had two very successful field trips -- one to Orient Beach State Park and the other to Croton Point Park for land shelling. Those who would like to get together for a trip to include fresh water and land shelling should so arrange at our next meeting.

EXPEDITION TO COSTA RICA

George and Mary Kline have been associated for some years with the Academy of Natural Sciences of Philadelphia and, though they are not professional malacologists, are well experienced in expedition work. At our meeting of May 8th Mr. and Mrs. Kline described their January, 1965, expedition to Costa Rica to do a survey of the shells of the Gulf of Nicoya and other bays on Costa Rica's Pacific coast in connection with the Academy's work with Indo-Pacific mollusks.

Having shipped heavy equipment to the Pacific port of Puntarenas, they flew to San José, then traveled by hired Volkswagon to the coastal areas where their accommodations ranged from modern motels to the camp (at Cocos) with but basic facilities. Prior inquiries had revealed no information on marine shelling. They found the shorelines and bays undis-

turbed, the fauna exceedingly rich, the finds exciting.

Though equipped for dredging and snorkeling, for the most part their work was done intertidally, as they discovered immediately upon reaching the coast that the fine brown sands of the beaches silt the waters to coffee color; visibility was nil except at the head of one quiet bay. Moreover, sharks regularly patrol the waters, coming in quite close to the beaches. However, as the tide range was from 9 to 12 feet, there was a terrific amount of collecting to be done on both sandy and rocky shores.

While awaiting delivery of their equipment they shelled the beaches of Puntarenas, a peninsular town on the Bay of Nicoya. Their first finds were colonies of *Nassa atlantica*, *Olivella* (3 species) and *Donax* (2 species) at the beach directly across the street from their motel. Exploring further, they found one of the best shelling areas in the "slurp and gook" around the outlet of a town sewer. In this organic, oozy substratum and on nearby jetties they found living *Cominella*, *Natica*, *Neritina*, *Pinna*, *Cerithium*, *Crucibulum* and other limpet types, *Thais kioskiformis* and, most exciting, *Rynchocornye humbolti*. Here, also, was living an *Arca* resembling our "Bloody Ark", the meat of which, chopped, spiced and eaten raw, was a local delicacy -- "Chuchecas". Having observed the ecological station, the Klines did not sample the delicacy.

Later work in the various bays uncovered species which seemingly could have come from Palau or New Caledonia. They were often found under the same rock with species that seemingly could have come from the Caribbean-Florida areas. These latter, particularly the *Vasum* and *Cypraea cervinetta*, give strong indication of a common pre-Isthmus ancestor with the Caribbean *Vasum* and *Cypraea*. Mr. Kline, showing a color slide of *Cypraea cervinetta* and its mound of cream-colored egg capsules, remarked that these were only some of the cypraeid egg cases sent to the Academy for study.

The many areas worked included several that could be reached only by boat. The one station where some skin-diving could be done was at the head of Bahia Culebra. Color slides showed the dugout canoe equipped with outboard motor, the clear water through which *Strombus* could be seen on the sandy bottom. There were all four species of *Strombus*: *peruvianus*, *galeatus*, *granulatus*, *gracilior*. Pictured also were an assortment of *Oliva*, *Pinna*, *Atrina*, the pearl oyster, *Cypraea*, and *Murex* -- the last two rows of spines of the living *Murex ambiguus* a brilliant blue, and *Pleuroploca princeps* -- its shell so similar to Florida's *P. gigantea* and the same brilliant red animal, but *princeps*' red flesh was dotted with spots of brilliant blue.

The beautiful *Conus dalli*, collected in the Bahia de Cocos, was photographed with its "stinger" extended -- the "stinger" (or proboscis) was white with a fleck of deep yellow at its tip.

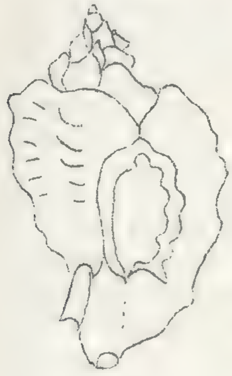
In closing, Mr. Kline added a warning about handling cones, telling us of an experience he had with a *Conus bruneus* collected off Panama. He had placed the cone in water to half-cover it then teased it, by blowing tobacco smoke at it, to make it extend its proboscis for a photograph. The snail did extend its proboscis, exploring with it for the irritant first under water then, raising its proboscis out of the water, spat its fluid a distance of at least 12" hitting Mr. Kline's left cheek. Fortunately he was wearing spectacles. The fluid was *immediately* washed off and no injury resulted.

INTERTIDAL COLLECTING NEAR LOS ANGELES

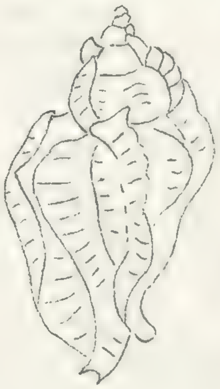
by Anthony D'Attilio

During a recent short vacation with my family in California, I visited, with no intention of serious collecting, several of the beaches in Orange County. This was during the month of April when both the air and the water are a little on the cool side -- at least, to my taste. Only the young surf boarders seemed to be enjoying the Pacific besides the regular denizens of these waters.

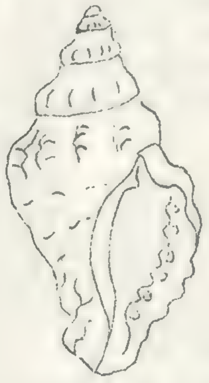
At some of these beautiful sand beaches just south of Los Angeles there are also stretches of rocky shore. We directed our search for mollusks toward these rocks, where at low tide numerous tide pools may be searched at leisure. My own interest being in species of Muricidae, I was delighted to find almost immediately specimens of Ceratostoma nuttali and Shaskyus festivus. This was at Newport Beach, a site which, because of its accessibility, has no doubt been quite often collected. The specimens collected were of comparatively small size, but abundant enough. Most were out of water apparently biding time until the returning tide. Other mollusks present were: several species of limpets, Tegula, Chiton, and small Acanthina -- in addition to the large ribbed mussel which thickly covered most of the available space on these rocks.



Ceratostoma nuttali



Shaskyus festivus



Murex poulsoni

On a subsequent visit to Corona del Mar, a beach several miles south of Newport, a few Murex poulsoni were located in a rock tide pool. Although systematically this species belongs to the subfamily Tritonaliinae, its true generic affinities are not at all certain. Its completely open canal and strongly denticulated aperture would seem to separate it from Tritonalia (=Ocenebra) erinacea Linné, the type of Tritonalia sensu strict~~us~~. It would appear from the heterogeneous assemblage of species frequently cited as Tritonalia species that further study is required of the eastern Pacific Tritonaliinae before true generic affinities are more adequately established.

Other intertidal species as, for instance, Ceratostoma foliata, Pteropurpura trialata, and Maxwellia gemma, were not collected during my too short vacation.

With this rich intertidal population of the larger muricid species, in addition to a number of smaller related species, it is fair to state that the coast of California provides much of interest for collectors and students of Muricidae.

BOOK REVIEW

Ruth D. Turner - A SURVEY AND ILLUSTRATED CATALOGUE OF THE TEREDINIDAE. 1966. vii + 265 pp., pl. 1 - 64, text figures 1 - 25. Price: $8.00. Museum of Comparative Zoology, Cambridge, Massachusetts 02138

The shipworms are not generally considered to be favorites among collectors, but they are unquestionably the most important members of the phylum from the economic point of view, since they cause far more expensive damage than is made up for by all the other "useful" mollusks combined. Dr. Turner, who has been a frequent guest speaker at the New York Shell Club, has written a treatise that will make future studies to curb the damage caused by these highly modified bivalves far more effective. Her work makes exact determination of the various species far easier and more certain than it has been heretofore. Besides, by showing, among other things, that the family contains oviparous, short term larviparous and long term larviparous species, and that many have very restricted ecological demands whereas others are far more liberal, she has briefly indicated the directions some of the control efforts must take.

But the real purpose of the book, as the title indicates, is to fix, as firmly as is possible today, the determination of the various species. In this respect Dr. Turner succeeds superbly by means of excellent line drawings of all valid species as well as clear and painstaking elaboration of the superspecific divisions. In addition, the work includes a critical catalogue of all the names that had ever been proposed for the family, so that the hunting down of synonyms and otherwise invalid designations is greatly simplified for future students.

Unfortunately for "shell collectors", Dr. Turner shows that the shells themselves are poor indicators of species differences, although several earlier authors have named new species on this feature alone. Aside from anatomic distinctions, the author indicates that the pallets -- the unique organs found only in this family of mollusks and employed to plug up the entrance of the long calcareous tube in which the animal lives when surrounding conditions become temporarily unfavorable -- are distinctive not only for the subfamilies, but on the generic and specific level as well. Hence, unless a reasonably well preserved specimen is obtained, it is almost impossible to place it into its proper genus or to determine the species to which it belongs. I have frequently found "worm" riddled logs and bits of wood on the beach at Rockaway, but have rarely collected anything more than the shells and the long tube.

The survey part of the book includes a discussion of the history of the studies of Teredo (going back to 1733 when Sellius wrote a study that is still valid today); the fossil record with illustrations; the biology, functional morphology and physiology of the creatures; their life history, distribution and dispersal, and evolution; an excellent key to the genera, and the characters used for identification -- in a word, as complete a discussion of the family as anyone can wish for.

Lest the notion be conveyed that the book is only for specialists, let me hasten to add that this amateur reviewer, for one, found it extremely interesting and informative reading. The text is clear and simple and the book as a whole holds one's interest continually. And one picks up many interesting facts:

Item: that when Teredo reaches the other end of the log and has nowhere

to turn for more wood food, it closes its burrow and in time dies;

Item: that a single specimen of the species *Psiloteredo megotara* produces 100,000,000 eggs in one spawning, thus outdistancing by far the American oyster with its 60,000,000 ± eggs;

Item: that there are shipworms that can live only in brackish water (*Nausitora*);

Item: that one species (*Psiloteredo healdi*) is found living in the fresh water of Miraflores Lake in Panama and Lake Maracaibo in Venezuela;

Item: that the genus *Kuphus* doesn't even live in wood; it bores in the mud in mangrove swamp areas of the Indo-Pacific; the shells are partially covered by a heavy muscular collar;

Item: that though the animals nourish themselves on the wood itself -- in a manner not yet entirely clear -- all the species require some plankton because of the need for proteins;

Item: that though in some species the eggs and milt are extruded through the siphons into the open sea, in others the excurrent siphons are used as sperm depositors, entering the incurrent siphons of female specimens: "the excurrent siphon probes wildly at the surface of the other siphon, and attempts to reach the opening at the top. The incurrent siphon tries to retract and avoid this contact....the excurrent siphon generally eventually succeeds in pushing the tip end for a considerable distance down the inside of the incurrent siphon and is able to maintain a firm attachment there, in spite of the frantic opposition of the host....[after several minutes] a minute amount of a somewhat transparent fluid may clearly be seen through the transparent walls of both siphons, being ejected spasmodically from the excurrent siphon into the incurrent siphon. As many as six ejections have been seen during one of these periods, lasting from three to four minutes. Frequently two, and occasionally three, excurrent siphons have been observed simultaneously entering a single incurrent siphon." (Clapp, 1951).

Items such as this can be continued far more than space here permits.

In brief, this is a superb example of what is involved in a thorough, painstaking study by a patient, highly trained and expert student. For this reason the work is gladly recommended to all who are interested in the phylum; reading it adds a dimension to the amateur's appreciation that no accumulation of shell specimens alone can give.

. . . MORRIS K. JACOBSON

NOTES AND NEWS:

SUEZ CANAL

Dr. Gunnar Thorson of Denmark, eminent malacologist, states that the Suez Canal is permitting animals from the Red Sea to enter the Eastern Mediterranean, and that this could wreak havoc with local species. Until recently the Great Bitter Lake acted as a barrier to marine animals, but the salinity in that body of water has now fallen so low that many marine species have a clear path to the Mediterranean. Although no definite damage has yet been known to result from the introduction of exotic species, Dr. Thorson points out that the entry of a Japanese snail into the Black Sea in 1949 destroyed the mussel population and caused a sharp drop in the flounder fishery. (SEA SECRETS, Int. Oceanog. Fdtn., Miami, Fla.)

"SWOP SHOP"

The Pittsburgh Shell Club is acting as a clearinghouse for letters received by the AMU secretary requesting information about shell clubs, dealers and shell exchanges. The Pittsburgh Club advises that after three months with the Pittsburgh Club they will send the letters on hand to one of the 33 clubs with membership in the AMU, on a rotating basis, with notations accompanying those letters that have received an answer. "Clubs or individuals desiring to receive the letters more often may contact the Pittsburgh Shell Club...A record will be retained by the Pittsburgh Club of the name, address and special interest of the correspondents in order that requests for exchanges by location or species may be supplied...WE ASK THAT ALL REQUESTS FOR EXCHANGE INFORMATION BE ACCOMPANIED BY A STAMPED, SELF ADDRESSED ENVELOPE.

"The Pittsburgh Club wishes it to be known that it is acting only as a clearinghouse and does not guarantee or sponsor the names appearing on a list."

(PSC "Bulletin" March 1966)

(The Pittsburgh Shell Club's March 1966 "Bulletin", now in our library, lists 15 names and addresses of individuals from Africa to Australia requesting exchange, or with shells to sell. The club's address: Pittsburgh Shell Club, Section of Invertebrates, Carnegie Museum, 4400 Forbes Avenue, Pittsburgh, Pa. 15213.)

SHELLING DOWN MEXICO WAY

The South Padre Island (Texas) Shell Club held a most successful Shell Fair last February. The day after the Fair closed a group took one of the judges on a shelling safari, traveling to a camp on the Gulf of Mexico "about a hundred miles down the Mexican coast from the River" (Rio Grande). Mrs. Betty Allen reports:

"There is not too much difference in the fauna of the Mexican coast compared to ours until you get south of Vera Cruz, but a number of species are fairly common in the area we were working that are fairly rare on the beach at Padre although they are taken frequently by shrimpers in deeper water. *Tonna galea*, *Phalium granulatum* and *Cymatium poulsoni* are found much more frequently on the Mexican beach than here. The most surprising thing was the enormous size of the *Dosinia elegans* compared with the ones from this area. They are at least twice as large and quite a bit heavier. The *Dosinia discus*, however, seems to be identical. We found several halves of *Pecten nodosus* but no pairs, although I have seen several pairs taken from there previously. We have record of only one pair taken alive on the Texas beaches. Dr. Abbott found a number of *Atrina serrata* alive and decided that they would be a good addition to dinner so we all helped collect them. He tried some fried and we found them a bit on the tough side, but Anne Speers marinated some of them in lime juice and we ate them raw and found them delicious. Dr. Abbott made some Coquina broth that was also delicious although Mrs. Abbott complained that the boiling surely faded the colors of the shells. Among other things we also found were *Dinocardium robustum*, *Noetia ponderosa*, *Architectonica nobilis* and several Arks...*zebra* and *umbonata* as well as *Anadara transversa* and *brasiliana*."

We thank Mrs. Allen for the above report and are happy to welcome her as a new member: Mrs. Betty Allen, Box 822, Port Isabel, Texas 78578.

32nd ANNUAL MEETING OF A. M. U. AUGUST 22-27

The 1966 meeting of the American Malacological Union will be held at the University of North Carolina, Chapel Hill, N. C. AMU members, their families and friends will be the guests of the North Carolina Shell Club whose members are making every effort to ensure that this meeting shall be a memorable one. Note that the meeting has been extended to five days rather than the usual four. This will ease a crowded program and was made possible by the fact that rates in the college dormitories are on a most favorable basis:

Single room: $3.75 per day, $17.75 per week. Double room: per person, $3 per day, $12.75 per week, including maid service. Fans in all rooms. Rooms may be occupied as early as Sunday morning, August 21st. Good meals available at a new cafeteria at about $3 per day. Golf privileges $1 per day, swimming pool card $1 per week. A bus provides free transportation around campus and town. A registration fee of $5 will cover all gratuities and include the cost of the group photograph.

Informal entertainment will occupy one or two evenings; bring slides to show, shells to trade, or what have you.

Two all day field trips have been planned for Wednesday:

(1) Nearby collecting of land and freshwater shells of the Piedmont.
(2) Field trip to the Morehead City coastal area. This trip will be limited to 70 persons, will start at 5:00 AM, take at least 4 hours (via bus) to reach the coast and will include a 3-hour offshore trip on the Duke University vessel "Eastwind"; some dredging will be done.
IT IS IMPERATIVE THAT ADVANCE REGISTRATION BE MADE FOR THE COASTAL TRIP; do not fail to check the indicated space on the reservation form.

The annual banquet on Thursday evening will feature Cornish game hen and the per person cost of $6 will include the preliminary social hour.

You are urged to make your reservation as soon as possible; absolute deadline: June 15th. All making reservations will receive acknowledgment and detailed directions for reaching the campus.

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(MEETING RESERVATION)

I plan to attend the 1966 AMU Meeting at Chapel Hill, N. C. and will arrive on August ____ AM PM There will be ____ in my party. We desire single rooms ___ / double rooms ___ for dates Aug. ___ to ___. Number in my party attending: banquet ___ , field trip to coast ___ , freshwater field trip near Chapel Hill ___ .

Signed ____________________________

Address ____________________________

____

(Return this form by June 15 to James E. Wadsworth, Wilson Court, Chapel Hill, N. C. 27514.)

NYSC NOTES NUMBER 123 JUNE-JULY-AUGUST 1966

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NEXT MEETING: SUNDAY, SEPTEMBER 11th, 1966, at 2:00 P. M.

PROGRAM: COLLECTING AND TRAVELING IN INDIA (with color slides)
by Stanley Sokoloff

FOSSIL COLLECTING IN THE ENVIRONS OF NEW YORK CITY
by Sidney Horenstein

ANNUAL ELECTIONS JUNE 12th

As Chairman of the Nominating Committee, M. K. Jacobson spoke in appreciation of the labors of the incumbent officers, then nominated the entire slate for another term. His recommendations were accepted unanimously. In response, President Raeihle thanked the members for their support, stating that the *members* are responsible for any success the Club might have; it is their work and cooperation that sustain the organization. Looking forward, he hopes for even more participation by individual members, both in making presentations, however brief, and sending in observations, however small.

ORIENT BEACH FIELD TRIP

Approximately 40 members met at Orient Beach State Park for our annual field trip and outing June 25th. The city had been sweltering, but 100 miles to the east it was cool, cloudy and breezy. Both air and water were at 62°, temperatures that kept a good percentage of us out of the water. Those that did wade had the best shelling, returning with beautiful specimens of *Busycon*, *Aequipecten*, *Chaetopleura*, etc.

Harold Feinberg remarked that *Chaetopleura apiculata* could no longer be considered "rare" in our area, as five specimens were collected on this one field trip. The largest specimen was found by Grace McDougall and it may be a record -- it measures 1¼" long and 3/4" wide and is higher arched than most we have seen. At last reports it was quite active in her aquarium.

We couldn't understand how Carl Babrow got a finger bitten while collecting an empty *Pandora gouldiana* until he demonstrated his shelling technique: Find a hole in the sandy bottom (most often under a stone) and stick your finger in it. Fiddler and rock crabs thus disturbed were also among his "take".

Listings of the species to be found in the Orient Beach area have been previously recorded in NOTES Nos. 63, 73, 93. The only new station this year is for the Chitons -- all five specimens were found in Long Beach Bay rather than Gardiners Bay as on previous trips. The only new species we add is *Calliopea fuscata*, several juvenile specimens of this tiny nudibranch being collected inadvertently by the writer along with seaweed and algae covered pebbles taken from the back bay.

D. Raeihle

KATSARAS AUCTION

Mr. Nick Katsaras announces that on September 18th he will hold an auction of fine and rare shells at the Broadway Dance Studio, 31-08 Broadway, in

Astoria, Queens. (The studio is on the second floor of the HFC Bldg., Broadway at 31st St., Astoria. "Broadway" stop, Astoria train, B.M.T.)

Nick's skill at assembling a large number of quality shells is so well known that we needn't say more. Hours: Inspection 12:00 noon, auction to start promptly at 1:00 PM.

AN OPEN LETTER TO ALL SHELL CLUBS HOLDING AFFILIATION WITH THE AMERICAN MALACOLOGICAL UNION, INC.

Dear Fellow Members:

Another year, another annual meeting of the American Malacological Union in the offing. Although the enclosed notice is addressed to your club (See NOTES No. 122 - Ed.), the AMU cordially urges all interested persons to attend. It is a heartening sight when the roll of member clubs is called and, one after another, groups stand to receive the plaudits of their colleagues.

These annual meetings are in large part technical, properly so since the AMU is a scientific organization of worldwide importance. But the amateur is receiving ever-increasing recognition of the important work being done by local shell clubs and their members, and the newcomer need not worry that there will be nothing for him. Shell Club Night is a popular feature in which your group is invited to participate; send or bring an exhibit, a skit, slides or moves - anything that will entertain or instruct. Written reports of club activities properly belong in the annual report bulletins, but a spokesman for each club with members present will be expected to briefly review the highlights of the past season, be they on the beach or in the meeting room. This year two field trips will offer exceptional opportunity to collectors, and the annual banquet with preceding social hour and extemporaneous after-dinner speeches is always a pleasant occasion. All so inclined are invited to bring shells to the meeting to give away, to trade, or simply to 'show off'. . .

We note with pleasure that several new club publications have been launched over the past year, and call attention that the AMU Constitution requires that the parent organization be furnished a copy of all such publications, notices, etc. In other words, please put the AMU secretary on your permanent mailing list. All publications received are filed and back issues are available for reference to anyone making written request to this office.

Best wishes, then, for a busy and successful shelling season, and let's all meet in August at Chapel Hill.

Sincerely

Margaret C. Teskey, Sec'ty
AMERICAN MALACOLOGICAL UNION

NOTE:

On Page 7 of NOTES No. 122, "Meeting Reservation", the deadline was announced as June 15th. Mr. Wadsworth informs us that the June 15th deadline was for the field trip to the coast only. There is no absolute deadline for room reservation; we suggest that banquet reservations be in by early August. . . See you!

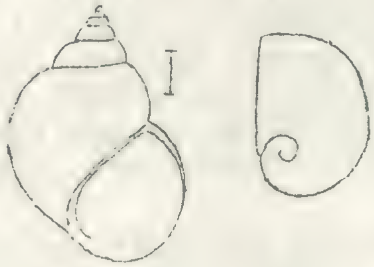
dr

A LITTLE KNOWN TIDAL MOLLUSK FROM THE SOUTH

by Morris K. Jacobson

Actually, the shell is not so little known, since it was discussed as recently as 1965 by Drs. Robertson and Habe in a note in 78 NAUTILUS 140. Nevertheless, it is not mentioned by Abbott, nor does it appear in any of the lists or books which treat the shells of the southern east coast of the United States. It has not yet been discussed in the series of monographs on the Epitoniidae that Clench and Turner are publishing in JOHNSONIA.

The shell is small (about 6 x 4.5 mm), of a "dilute cinnamon" or "dark carob brown" color (Pilsbry, 1945) and, except for the small spire and swollen body-whorl, not particularly striking in shape. (See illustration.) It has a thin, flexible operculum of two very rapidly enlarging whorls. The first specimen was found by Thomas L. McGinty in Lake Worth, and subsequently it was discovered at Baker's Haulover at the upper end of Biscayne Bay, Florida. It has since been found at Beaufort, North Carolina and Port Aransas, Texas. There are related species on the Pacific coasts of Asia and North America and in South Africa.



Alexania floridana (Pilsbry)

When Pilsbry first noticed the shell in 1945, he named it Stenacme floridana and in his enthusiasm made a new genus for it and suggested it be placed in its own family, the Stenacmidae. This was because he thought it was related to Amphibola, a salt-marsh snail from New Zealand, which is the only known operculate pulmonate. Now, as is generally known, the Pulmonata are air breathing gastropods and are considered to be the "highest" members of the phylum. Long ago in their development, probably from the usually inoperculate opisthobranchs, they entirely gave up the primitive operculum or "door". The operculate Amphibola thus is an unusual member of the pulmonates. Hence, when Dr. Pilsbry thought he had found another member of the group in the USA, his enthusiasm becomes understandable.

In 1958 (72 NAUTILUS 68) Robertson and Oyama noted that a shell very similar to Stenacme had been named Habea inazawai Kuroda in 1943. (War conditions had kept this fact from being known in America.) Hence the genus Stenacme Pilsbry 1945 had to give way to the genus Habea Kuroda 1943 because the latter is the earlier name. The Florida shell was now known as Habea floridana (Pilsbry). More important was the discovery that Habea (or Stenacme) was not an aberrant pulmonate as Pilsbry had supposed, but rather an aberrant member of the wentletrap family, Epitoniidae. The shell is completely smooth and lacks the graceful axial ribs so characteristic of the wentletrap shells.

But the story does not end here, in fact it becomes somewhat more complicated. As early as 1926 the English malacologist Tomlin discovered the genus in Durban, South Africa and named it Alexandria, with the type species (the only one known at the time) A. natalensis Tomlin. He placed it in the family Acteonidae. However, the name Alexandria had already

been used for an echinoid in 1881, and hence could not be used again. And so in 1928 Embrick Strand (a queer "zoologist" who made it his business to rename homonyms in all fields, especially those of which he knew nothing [see Pilsbry, 47 NAUTILUS 35]) renamed it *Alexania* Strand 1928. He also, as a result of his thoroughly grounded ignorance in malacology, named it once more as *Tomlinula* in 1932. Strand's first name, *Alexania*, must be regarded as valid and the Florida shell must now be called *Alexania floridana* (Pilsbry). The type species is *A. natalensis* (Tomlin) 1926.

According to Robertson and Habe, there is little doubt that the shell is an epitoniid. In shell characters, however, it is closely related to *Recluzia* which, together with *Ianthina*, forms the family Ianthinidae. And Epitoniidae and Ianthinidae, having the same radular construction, are the only families placed in the superfamily Ptenoglossa (wing teeth). Hence it might be said that *Alexania* has the anatomy of Epitoniidae, the radula of Ptenoglossa, and the shell of *Recluzia*, Ianthinidae thus serving as a sort of evolutionary jackpot.

Visitors to Florida as well as AMU members who are planning to attend the AMU meeting in 1966 should be on the lookout for specimens. Pilsbry found it in the interstices of small stones which formed a low ridge at the high tide line. He also noted that it was very scarce. All collectors should take copious and careful ecological notes. It is understood that Dr. Robert Robertson of the Academy of Natural Sciences of Philadelphia is writing a monograph on this and other epitoniids. We are sure he would be grateful for specimens and data.

LITERATURE CONSULTED:

1933 - Pilsbry, Henry A., 47 NAUTILUS 33-35.
1945 - Pilsbry, Henry A., 58 NAUTILUS 112-116, pl. 5:1-12.
1958 - Robertson, Robert & Katura Oyama, 72 NAUTILUS 68-69.
1965 - Robertson, Robert & Tadashige Habe, 78 NAUTILUS 140-141.

(Note: 47 NAUTILUS 33-35 = NAUTILUS, Volume 47, pages 33-35 - etc.)

Publication:

INVERTEBRATE COLLECTIONS: TRASH OR TREASURE ?

by William K. Emerson and Arnold Ross

From the CURATOR, volume VIII, number 4, 1965, a quarterly publication of the American Museum of Natural History. pp. 333-346.

This brief article is a storehouse of indispensable information for anyone setting about making a scientifically useful collection, as contrasted with a merely ornamental one. It is, of course, chiefly designed for museum curators who are in charge of huge accumulations of preserved invertebrates, but it is surprising to see how much of this information is of value to the private owner of a small, and especially growing, collection. Every member of the New York Shell Club, for example, will be well advised to pay particular attention to the chapters on ACCESSIONING AND CATALOGUING and on LABELS AND LABELING, pp. 337-340. Of particular value is the thorough bibliography that is provided.

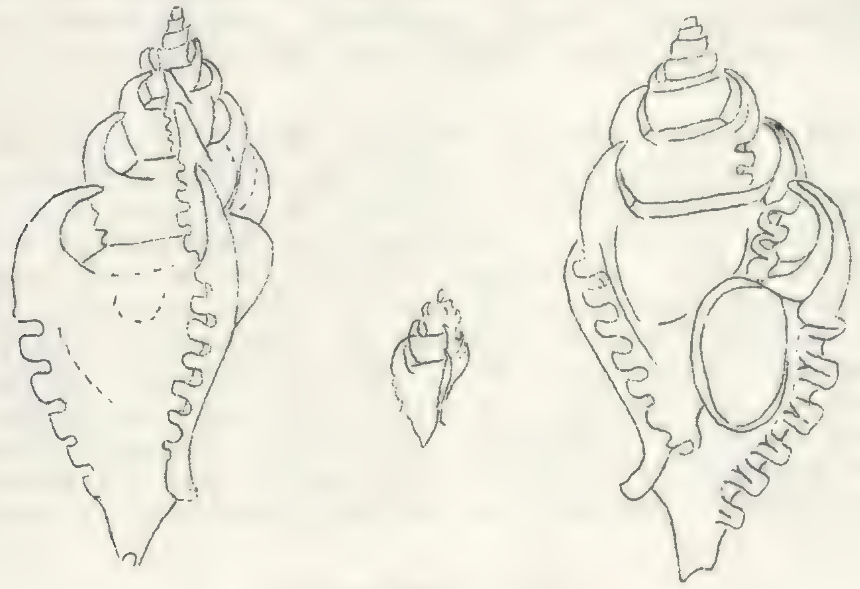
The CURATOR is available by subscription from the American Museum of Natural History, $7.50 yearly. Individual numbers may be purchased at the Museum's bookshop near the 77th Street entrance.

MKJ

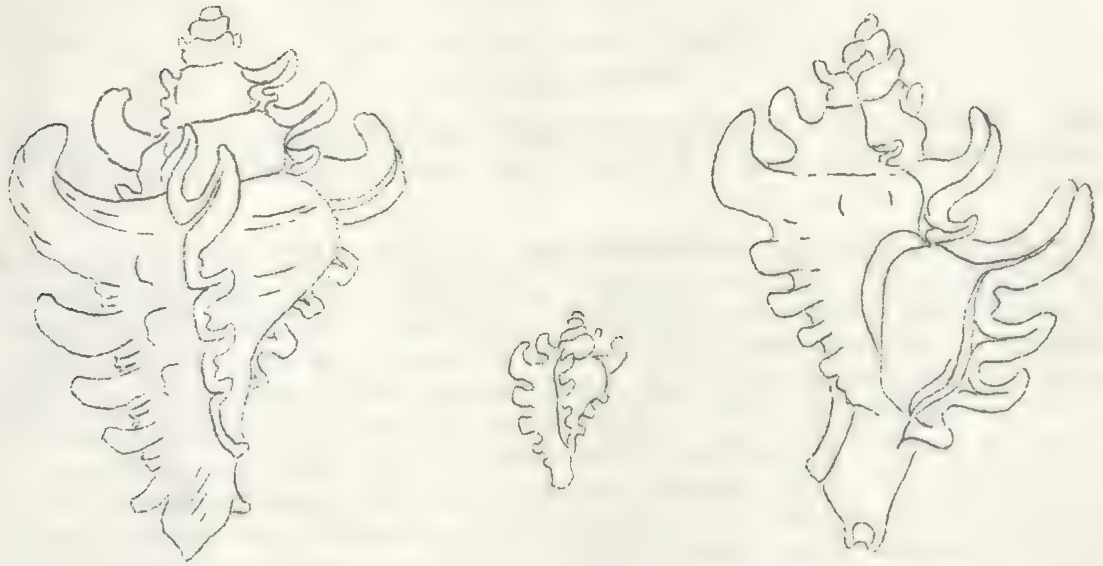
OBSERVATIONS ON THE GENUS POROPTERON Jousseaume, 1880

by Anthony D'Attilio

This is a small genus of beautifully sculptured little muricids. The two species, Poropteron uncinarius Lamarck and mitraeformis Sowerby, are both known from South Africa where at least P. mitraeformis may be obtained intertidally in the vicinity of East London.



Poropteron mitraeformis Sowerby



Poropteron uncinarius Lamarck

The specific validity of mitraeformis has been questioned by some modern as well as earlier writers. Barnard (1959, pp 198-200) however has been extremely careful in enumerating the characters which are of specific value for these two species. In my opinion, an examination of the shells

of the two forms bears out his diagnoses. The enlarged drawings here illustrating the two species I hope will be of some value in helping to arrive at an understanding of these interesting species.

According to Barnard the operculum was not known, but in examples of P. mitraeformis before me the nucleus is located laterally, but close anteriorly, to the apex. The character of the operculum, in addition to the closed canal of the shell, suggest the placement of Poropteron in the subfamily Tritonaliinae. However, since the radula has not as yet been studied, a final decision must await the results of further investigation.

One character has not yet been pointed out by Barnard and it is possible that it has not been previously noted in the literature: When mature, the surface of both species is minutely punctured in a most unusual manner. It is best understood by imagining a pointed instrument driven sharply slantwise into a semi-soft substance. The result would be that a portion of the surface material would be raised because of the angle at which the point is driven. In fresh, live-collected specimens this puncturation can be studied readily. On beachworn specimens the upper layer of the punctured area is worn away, revealing on the new surface a series of short grooves, arranged spirally. It must be said that the majority of specimens are either encrusted with various organisms or very much abraded, affording difficulty for the observation of this character.

Literature cited:

Barnard, K. H., 1959. "Contributions to the Knowledge of South African Marine Mollusca - Part II, Gastropoda: Prosobranchiata: Rachiglossa." Annals of the South African Museum, Vol. XLV.

Publication:

HOW TO COLLECT SHELLS
A Symposium

Published by the American Malacological Union, Inc., 1966. 101 pp., $2.00 postpaid from M. C. Teskey, Sec'y, Route 2, Box 318, Marinette, Wisconsin 54143.

The third edition of this highly recommended publication is now ready for distribution. It has been revised, being brought to date with the addition of pertinent new information, yet has retained the valuable instructive articles that are so graphic they make the reader a companion in the field with the experts. We quote from the introduction on p. ii by R. Tucker Abbott, who speaks with authority: "No handbook of instructions for shell-collecting can speak with more authority than this official publication of the American Malacological Union, for it contains a wide variety of advice from the leading authorities in this country. Both professional and outstanding private collectors, all members of the society, have contributed the sum of their many years of profitable collecting and preparation of shells. . . This booklet will stimulate the interest of the novice who is sometimes plagued by problems of how to collect and how to clean shells, and many students who consider themselves advanced in malacology will find themselves turning to one section or another for information. . ."

We feel that this booklet should be in every member's library.

SHELLING IN OTHER PEOPLE'S FISH BOWLS

by Dorothy Germer

While visiting my sister one warm day in August, 1964, she asked me to look at the strange thing crawling on the glass of her fish tank. My nephews collect tropical fish (or anything that crawls, creeps, swims or flies -- and even if it slithers) and the "thing" had been brought in with some greens and snails they had gathered for their tank from a nearby river in Lincoln Park, New Jersey.

With the aid of a magnifying glass I could see that it was a tiny fresh water limpet, Ferrissia parallela Haldeman, and about 1 mm. in diameter. We could see its tiny mouth rasping away on the algae growing on the glass. It remained in a small area near the bottom of the tank for the four months it lived in Lincoln Park.

At Christmas of that year I received from my nephews a bowl, water, sand and the "little critter", as they called it. Now we really could watch it grow.

It spent most of its life beneath the sand, clinging to the glass, eating algae. In the cold months it spent long periods of time in what appeared to be hibernation, moving about only on warm, sunny days. In the summer months it would go above the sand but always returned to under the sand. It would not crawl across the sand, or onto a rock or the greens we placed in the bowl.

We had our "little critter" until May 19th of this year, when it died. It had been in captivity for 21 months and had grown to 8 mm. in length.

Limpets are my favorite mollusks, so "the critter", as it always will be called, has taken its place in the collection.

(A note to fish fanciers: We know it is not practical to take wild greens for your tanks, but in this case everything thrived -- even the fish!)

* * *

NOTE TO ABOVE: Frank Collins Baker, 1928, FRESH WATER MOLLUSCA OF WISCONSIN, Part I, Gastropoda, pp. 395-398: Ferrissia parallela Haldeman: "General Distribution: 'Nova Scotia and New England west to Minnesota, Manitoba south to Rhode Island, Central New York, Northern Ohio and Indiana (Walker). A species of northern distribution.'..(Baker, 1906b, p. 101)." The largest specimen listed (p. 396): "L. 6.0; H. 2.0; D. 3.0 mm. DePere (University of Wisconsin, 442)."

Mrs. Germer's specimen extends both the size and range recorded in the 1928 publication.

dr

Pub.: A GLOSSARY OF A THOUSAND-AND-ONE TERMS USED IN CONCHOLOGY
Compiled by Winifred H. Arnold

March 15, 1965 Supplement to Vol. 7 of THE VELIGER, a publication of the California Malacozoological Society, Inc.; 50 pages, 155 line drawings. Price $2.00 plus $.35 postage from Mrs. Jean M. Cate, Mgr. C. M. S., 12719 San Vicente Boulevard, Los Angeles, California 90049.

This will prove a handy reference book for both the amateur and more advance student, with the 155 excellent figures demonstrating the meaning of certain terms better understood when illustrated. Derivations of the terms are given to clarify the meanings of the scientific names.

SHELLING IN A DIFFERENT LANGUAGE

Trips planned for areas where the local language is other than English can immeasurably be expedited if the collector prepares himself with a short glossary of shelling terms. Not all of us are gifted linguists but a brief study of translations for "Good day", "Please" and "Thank you" is not only a courteous gesture for you, the foreigner, to make but often can establish a pleasant rapport with your hosts when arriving in a potentially excellent shelling community.

Our experience in consulting with representatives assigned to the U. S. from other countries has resulted in a universal guarantee that the language problem will be non-existent for "every one speaks English". Perhaps that may prove to be true in many large cosmopolitan cities but somehow mollusks never seem to live in the congested urban neighborhoods of those multi-lingual educated inhabitants. The kindly, helpful people of the fishing villages are considerably less sophisticated and are very similar to the simple folks living in the small towns of our own country where, except for Spanish in selected spots along our coast, I doubt if many fishermen could be found who understand another tongue. The same situation exists wherever we have visited in the pursuit of shells.

A glossary may be as long as one wishes and as elaborate as fancy dictates. The following is a personal list of what have proved, for us, to be the most useful words in shelling - perhaps not elite, but they have worked! Nouns plus a smile, gymnastics and pantomime, combined with the local word for "Please", are certainly the most important things to memorize. Whether the noun is masculine or feminine, for this purpose, is an unnecessary nicety. If one is inventive, pantomime can be depended on to do a splendid job instead of worrying over verb tenses. Pronunciation can be tricky but try them all - a mispronounced word in the language of your new acquaintance is much more appreciated and effective than impromptu Pigeon-English, usually spoken in increasingly louder tones as frustration sets in.

If you are contemplating "foreign shelling", certainly a bi-lingual dictionary is of primary importance. Not only will it be well thumbed before your homeward journey but it is a wonderful gift to leave with someone who has helped you. In most countries we have found that dictionaries in the local language and English are both hard to find and expensive.

On many occasions our Expedition has come to a complete halt while awaiting either the Leader or the Led to find a precise word in our brought-along volume. In places like the U. S. Trust Territory and Ceylon (for which we were unable to find dictionaries in Palauan, Sinhalese or Tamil) we daily added to our list of words and spelled them phonetically. Such practice is lots of fun and can add to one's enjoyment of a trip, but it does infringe on the precious time for field work.

Equipped with a minimum glossary in English, French, Spanish and Portugese a collector can do a vast amount of wandering in his search for shells. With travel time shrinking as bigger and better jets enter the service of the airlines the possibilities of getting to mouth-watering reefs and lagoons throughout the tropical world can become realities in the average American vacation period. If this is the year for initial shelling in foreign waters for someone, I submit our glossary - - as the old lady said of her hat pin - - "You never know when you might need one!"

MARY C. KLINE
May 10, 1966.

KLINES' GLOSSARY OF SHELLING TERMS

English	French	Spanish	Portuguese
GOOD DAY	BONJOUR	BUENOS DIAS	BOM DIA
PLEASE	S'IL VOUS PLAIT	POR FAVOR	POR FAVOR
THANK YOU	MERCI	GRACIAS	OBRIGADO, m. OBRIGADA, f.
SEA	MER	MAR	MAR
SHELL	COQUILLAGE or COQUILLE	CONCHA	CONCHA
SAND	SABLE	ARENA	AREIA
ROCK	ROCHE	ROCA	RECIFE
REEF	RECIF	ARRECIFE	RECIFE
MUD	BOUE	LODO	LAMA
HIGH TIDE	MAREE HAUTE	MAREA ALTA	MARE CHEIA
LOW TIDE	MAREE BASSE	MARREA BAJA	MARE VAZIO
ROPE	CORDE	SOGA	CORDE
SHARK	REQUIN	TIBURON	TUBARAO
SNAKE	SERPENT	CULEBRA	COBRA
TO GO	ALLER	IR	IR
STOP	ARRETER	PARAR	OBSTRUIR
SLOWLY	LENTEMENT	DESPACIO	LENTAMENTE
YES	OUI	SI	SIM
NO	NO	NO	NAO
TODAY	AUJOURD'HUI	HOY	HOJE
TOMORROW	DEMAIN	MANANA	AMANHE
YESTERDAY	HIER	AYER	ONTEM
MUCH	BEAUCOUP	MUCHO	MUITO
GOOD	BIEN	BUENO	BOM
SHALLOW	PEU PROFOND	BAJO	RASO
DEEP	PROFOND	HONDO	PROFUNDO
TO DIVE	PLONGER	ZAMBULLIR	MERGULHAR

KLINES' GLOSSARY OF SHELLING TERMS (Continued)

English	French	Spanish	Portuguese
MASK	MASQUE	MASCARA	MASCARA
FINS	PALMES	ALETA	BARBATANA
SNORKLE	RESPIRATOR	RESPIRADOR	RESPIRADOR
DREDGE	DRAGUE	DRAGA	DRAGA
SWIM (to)	NAGER	NADAR	NADAR
BOAT	BATEAU	BARCO or LANCHA	BARCO
WATER	EAU	AGUA	AGUA
ICE	GLACE	HIELO	GELO
WASH	LAVER	LAVAR	LAVAR
TOWEL	SERVIETTE	TOALLA	TOALHA
SOAP	SAVON	JABON	SABAO
COLD	FROID	FRIO	FRIO
HOT	CHAUD	CALIENTE	QUENTE
TOILET	CABINET	RETRETE	LATRINA
TOILET PAPER	PAPIER DE CABINET	PAPEL HIGIENICO	PAPEL HIGIENICO
BILL	L'ADDITION	CUENTA	CONTA
RECEIPT	QUITTANCE	RECIBO	RECIBO
BREAKFAST	PETIT DEJEUNER	DESAYUNO	PRIMERA REFEICAS DO DIA
LUNCH	DEJEUNER	ALMUERZO	ALMOCO
DINNER	DINER	COMIDA	JANTAR
KNIFE	COUTEAU	CUCHILLO	FACA
FORK	FOURCHE	TENEDOR	GARFO
SPOON	CUILLER	CUCHARA	COLHER
TABLE	TABLE	MESA	MESA
CHAIR	CHAISE	SILLA	CADEIRA
BED	LIT	CAMA	CAMA

NYSC NOTES NUMBER 124 SEPTEMBER 1966

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These NOTES are distributed by mail to both regular and corresponding members of the NEW YORK SHELL CLUB, Inc. Dues: Full membership $3 per year, $1 for each of other members of the same family, with one copy of NOTES per family. Corresponding membership $2 per year. A limited number of back issues of the NOTES are available at 25¢ postpaid per single copy; also bulk rates. Items and articles for publication are welcomed by the NOTES and should be sent to the Editor. The Corresponding Secretary should be notified promptly of any change in your address.

NEW YORK SHELL CLUB NOTES No. 124 September 1966 Page 1

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, OCTOBER 9th, 1966, at 2:00 P. M.

PROGRAM: SHIPWORMS AND PIDDOCKS -- ARE THEY REALLY "BORING"?
by Dr. Ruth D. Turner

MARGINELLAS -- GEMS OF THE OCEAN, by Nick Katsaras

SHELL-OF-THE-MONTH by Fred Tobleman

PROGRAM NOTE: Dr. Ruth D. Turner, of the Museum of Comparative Zoology, Cambridge, Massachusetts, is well known throughout the maritime world as well as in malacological circles for her work with the shipworms -- a long study that frequently demanded talents worthy of a master sleuth!

AMERICAN MALACOLOGICAL UNION, PACIFIC DIVISION

Last June 19 - 22 the Pacific Division of the American Malacological Union held its annual meeting in Seattle, Washington. As host club, the Pacific Northwest Shell Club had planned long and carefully to make it a success.

The convention began with a field trip across Puget Sound to the Kitsap Peninsula, participants gathering at the ferry dock on a cold, windy Sunday morning. Among the shells collected were specimens of *Polinices lewisi*, *Searlesia dira*, *Thais lamellosa*, *Saxidomus giganteus*, and several species of Chitons.

The meetings were held on campus at the University of Washington with Dr. Alan Kohn, chairman, presiding. An entire lounge was filled with show cases of exhibits and glass-topped racks of shell displays. Panels in the corridor were devoted to shell art, photographs and shell lore and were enjoyed by all who passed by.

Among the interesting talks were "Nudibranchs" and "Chitons in Color" by Allyn Smith of the California Academy of Sciences. Both presentations were illustrated with beautiful color slides. Alan Kohn's paper was entitled, "Why are there so many species of *Conus*?"

One evening we were entertained at an elaborate Potlatch, which is a Northwest style buffet and gift-giving. The banquet, held at the Windjammer Restaurant, was also highly successful.

The final day was spent at the Seattle Center, the site of the 1962 Fair. The buildings form a permanent installation and the monorail runs continuously from downtown Seattle to the fairgrounds. We were served a delicious luncheon in the Space Needle and attended sessions in the Science Center. In addition to two presentations by Allyn Smith on the Galapagos, the current film being shown in the Science Center dealt with Galapagan fauna.

Some 150 delegates attended the convention and thoroughly enjoyed themselves.

W. E. Old

AMERICAN MALACOLOGICAL MEETING -- 32nd ANNUAL MEETING

The North Carolina Shell Club is to be congratulated on their hosting of this year's AMU Meeting, held at the University of North Carolina at Chapel Hill August 22 - 26. There was an attendance of about 150 in spite of late cancellations due in many instances to the confusion caused by the air lines' strike. Our hosts could not have been more considerate, meeting trains at odd hours and otherwise making sure that no delegate was inconvenienced.

As always, the atmosphere of lobby, lounge and cafeteria was that of "old home week" -- an "old home week" in which, in addition to personal greetings, there was an informal exchange of malacological information and ideas that would never have been accomplished by mail.

AMU President Ralph Dexter presided at the scientific sessions, where the papers concerned species from the mountains to the seas. ... North Carolina Shell Club President Paul Jennewein and Committee Members Carl Withrow and Jim Wadsworth presided at the informal evening sessions. ... The delegates appreciated having the field trips mid-week (one to the sea, one to land and fresh water areas); each was pronounced "fabulous". ... The banquet on Thursday evening was notable for its setting and souvenirs (which included Scotch bonnets *and* Scotch Bonnets) as well as the delicious food. ... The week culminated with a relaxing day on Friday when in the afternoon we were taken on a tour of the historical campus and in the evening visited the planetarium. ...

(We'll have further details of this AMU Meeting in our next issue, after Marian Schroth gives her illustrated report at our October meeting.)

dr

PUBLICATIONS:

SHELL COLLECTING - AN ILLUSTRATED HISTORY

by S. Peter Dance. University of California Press, Berkeley and Los Angeles, 1966. 344 pp., XXXV pl. Price $10.00.

This book is not one of the "How to..." type of things, but is a scholarly work on the history of shell collecting. It traces the growth of the hobby from ancient times through the Middle Ages and up to the present. There are chapters devoted to early writers, books, voyages, auctions, collectors, and collections.

Often when reading (or writing) a shell label, one wonders about the person who described the shell, or about the person honored by the name bestowed upon the shell. Perhaps no book contains more information on this phase of conchology. Also, the information is authoritative. Peter Dance has researched his book thoroughly, both from literature and from original letters and catalogues preserved in the Library of the British Museum.

One chapter is devoted to "Four Famous Rarities": *Epitonium scalare* L., the Precious Wentletrap; *Conus cedonulli* L., the Matchless Cone; *Carinaria*, the Glassy Nautilus; and *Conus gloriamaris*, the Glory of the Seas.

"Shell Collecting . . " is illustrated with numerous line drawings throughout the text in addition to the 35 black and white photographic plates of personalities and rare shells. Its pages include an excellent bibliography (337 listings), appendix, and index.

W. E. Old

SEA SHELLS OF THE WORLD, With Values

by A. Gordon Melvin. Published by Charles E. Tuttle Co., Inc., Rutland, Vt. and Tokyo, Japan, 1966. 167 pp., 27 color pl., 27 black & white pl., containing "Illustrations of 1100 Shells". Price: $7.50.

This is a new shell book somewhat similar in format to the well-known Webb's "Handbook". The term "all new" could be used in describing this book since it is illustrated throughout with original photographs, rather than with ones copied from other works. The shells in many of the plates are tastefully arranged, while in others they are overcrowded or highly reduced. On the majority of the plates shells are grouped by genera, such as Conus, Cypraea, Voluta, Murex, Pecten, etc. However, a few plates look more like a "Shell U.N.", with representatives from various genera.

Each shell is accompanied by a brief description. Localities, measurements and values for each species are also indicated.

W. E. Old

The photographs are excellent and the names and descriptions of the shells are on the pages facing the pictures, which is a boon to anyone identifying shells. In naming the shells, Dr. Melvin's rule has been "to present the name most likely to be helpful to the reader" -- which makes the book particularly helpful to the ever increasing number of amateur collectors.

The author reminds the reader that the values given for each shell are approximate - based on dealers' prices - and of course subject to variance.

The author and publisher have kindly presented the NYSC Library with a review copy of SEA SHELLS OF THE WORLD which may be examined by members at our October meeting.

G. McDougall

BRITISH BIVALVE SEASHELLS

A Handbook for Identification, by Norman Tebble. Published by the British Museum (Natural History), Cromwell Road, London, S.W.7. Obtainable from Publications Officer @ $2.00 per copy paperback, $3.00 per copy full bound, plus 15¢ postage first copy, 10¢ each additional copy.

We quote from the announcement by the publishers: "Richly illustrated, with over 200 black and white line drawings, and 8 beautiful, coloured plates, this Handbook provides descriptions of the shells of 184 species of Bivalve Molluscs living in the seas around the British Isles. (Contains) extensively illustrated identification keys..... provides a rich store of information.."

AN ALBINO SPECIMEN OF OUR LOCAL ACMAEA

"July 21, 1966 . . I would have added my bit to your write-up of the Orient field trip if I had known what I had: Among the rocks in the intertidal zone of Gardiners Bay I found two live limpets which I planned to send to a friend. The friends like their shells cleaned and polished with a high sheen so I put the limpets in chlorox to get the mud-colored periostracum off. When I took them out and looked at them I found that one of the shells was pure white.

"I am sending you this note in case you want to record that an albino Acmaea testudinalis fergusoni Wheat was found in this area. I do not know how often albino limpets are found around here. I showed the shells

to Bill and he told me that he does not know either.

"As the Museum does not have an albino of this species I am donating the two limpets to the collection.

Albert Taxson

BABYLONIA AMBULACRUM Sow. ON A BORNEO BEACH

(The following is an excerpt from a letter to NYSC member W. S. Murphy of New York from NYSC member Mrs. Mary Saul of Jesselton, Malaysia:)

Since we first came to Borneo 17 years ago, we have occasionally found broken pieces of a very beautiful shell, pure white with rich dark brown spots and blobs; the first pieces we picked up on the sandy beaches at Brunei. Eventually, after a monsoon storm, a whole shell turned up -- but dead. It proved to be Babylonia ambulacrum Sow.

As the years went by, we occasionally found another dead one -- and once, on a mudflat near Sandakan, a magnificent specimen inhabited by a hermit crab. We had come to the conclusion that the habitat of this species must be deeper than we could go, and that we should never find one alive.

So, judge at our excitement when, walking past the Jesselton Yacht Club at the sea's edge at low tide on April 21st, there should be a live B. ambulacrum gliding along on top of the sand in a few inches of water. After seventeen years, we just could not believe our eyes!

The animal is pale cream, deepening to a rich orange colour on the upper part of the foot. The foot is leaf-shaped and has a line of pure white around the edge. This line draws out to a little white "stem" at the posterior end. The siphon is mottled with dark grey and the tentacles are pale fawn, almost transparent and very long and fine. Altogether a beautiful creature! And he must be quite uncommon. . . .

Mary Saul

(Mrs. Saul has sent us an excellent article, "Shell Collecting in the Limestone Caves of Borneo", which will appear in NYSC Notes No. 125. We also have clippings from "The Vanguard" and "The Sarawak Tribune" which, together with the following resumé, attest to the tremendous amount of volunteer work of a conchological nature she has done during her stay in Borneo:)

"Mary Saul has lived in the Far East for twenty years, most of them in Borneo. Her whole family (husband, son and daughter) have been interested in shells since first setting foot on a Borneo beach.

"Since coming to live in Sabah ten years ago, the collection and study of the Mollusca of that state has become for her a fulltime occupation. She has recently presented a collection of some 2,000 Borneo shells to the Sarawak Museum, Kuching, and has arranged them in the Gallery now named after her and opened on August 5th of this year. Currently she is preparing a Reference Collection of the Mollusca of Sabah which will be left in the Sabah Museum, Jesselton, when she and her husband retire to England next year.

"Her ambition after leaving Borneo is to compile a checklist of all the Mollusca she and her family have collected there. Other interests .... walking, swimming, reading history, dressmaking."

New Conchological Discoveries!

NEW ENGLAND'S RARITIES, 1672

By R. Tucker Abbott

Fifty years following the planting of the Massachusetts Colony, a John Josselyn sojourned in Meyne (Maine) for eight years. In 1672 he published an account of "New-Englands Rarities discovered in Birds, Beasts, Fishes, Serpents and Plants of that Country." He also appended a "Perfect Description of an Indian Squa in all her Bravery, with a Poem not improperly conferr'd upon her." However, the conchological contents of the book are perhaps more worthy of today's attention, since Josselyn was the first recorder of mollusks of the Eastern United States.

Twelve kinds of shells are listed among the Fishes, with notes concerning their medicinal uses. Josselyn was audacious enough to state that he knew of 300 kinds of Fishes, while Pliny knew only of 144. "I suppose America was not known to Pliny", safely wrote Josselyn. In Elizabethan English he listed the Clam or Clamp; the Periwincle (Littorina), the Scallope or Venus Coccle (Pecten), the Calemarie or Sea Clerk (Loligo squid), and Muscles of divers kinds. He had more to say about three mollusks of particular interest to New Englanders: the Quahog, the Dogwinkle and the Razor Clam.

The Coccle (Quahog, Mercenaria mercenaria)

> A kind of Coccle, of whose Shell the Indians make their Beads called Wompam-peag and Mohaicks, the first are white, the other blew (blue), both Orient, and beautified with a purple Vein. The white Beads are very good to stanch Blood.

The Scarlet Muscle (undoubtedly the Dogwinkle, Nucella)

> The Scarlet Muscle, at Paschatawey a Plantation about fifty leagues by Sea Eastward from Boston, in a small Cove called Bakers Cove there is found this kind of Muscle which hath a purple Vein, which being prickt with a Needle yieldeth a perfect purple or scarlet juice, dying Linnen so that no washing will wear it out, but keeps its lustre many years: We mark our Handkerchiefs and Shirts with it.

The Sheath Fish (Razor Clam, Ensis)

> Sheath Fish, which are there very plentiful, a delicate Fish as good as a Prawn, covered with a thin shell like the sheath of a Knife, and of the colour of a Muscle.
>
> Which shell Calcin'd (burned) and Pulveriz'd, is excellent to take off a Pin and Web, or any kind of Filme (cataract) growing over the Eye.

Getting back to that "Indian Squa", Josselyn says, "the women have very good Features; seldome without a Come to me, or Cos Amoris, in their Countenance; handsome streight bodies, and slender, elsewhere generally plump as Partridges."

Josselyn was obviously America's first anthropologist, and hardly a conchologist!

SOME FOOD THOUGHTS ON MOLLUSKS

by Vincent Cusumano

Many of the marine mollusks found in local waters are really good to eat, although people unfamiliar with such delicacies will turn up their noses at even the thought. The only restraint that *must* be used is that one keeps from collecting for food purposes too close to city areas likely to be polluted. Among the shellfish which may be eaten either raw or cooked are *Venus mercenaria*, *Crassostrea virginica*, *Crepidula fornicata*, and *Mytilus edulis*. Those shellfish tasting better when cooked are *Polinices heros* and *P. duplicatus*, *Busycon carica* and *B. canaliculatum*, *Ensis directus*, *Mya arenaria* and, last but not least, *Littorina littorea*.

To prepare large shellfish like *Polinices* and *Busycon* it is customary to discard all parts of the animal except the foot. Among Italians, for instance, the parts discarded are referred to as "Lupino", probably in reference to the poisonous effects of eating the leaves of the Lupine plant. Nonetheless, regarding the Lupine, the large seeds of this plant are quite edible and are to be found for sale in Italian markets, in tubs, soaking in water.

In the preparation of *Littorina littorea* the snails are first washed thoroughly and then placed in a pan with salted water, the object of which is to impel the snails to exude much of their ready supply of mucus and expel the sand sometimes trapped in the shell. After such washing they are ready to be cooked in boiling water to which has been added some salt. When cooled enough to handle the snails may be eaten by using a needle or toothpick to extract the cooked meat. While still in the shell they may also be placed in tomato sauce that is in the process of cooking. The sauce is thereby imparted a piquant flavor and is especially nice to use over spaghetti. A word of caution before cooking: It is advisable to test each snail first to make sure it is alive and not dead. This is done by pricking the snail with a needle whereupon, if alive, it will retract immediately into its shell.

While on a navy vessel in the Philippines during World War II I had caught an octopus and proceeded to cook it. Everyone looked at me like I was a little crazy, but after a while each of those watching me was chancing a taste and before long I had very little left for myself.

Some of my relatives live in East Quogue, in the Shinnecock area of Long Island. It is in this locality that we usually gather our *littorea* and often in the same locality a few *Thais lapillus*. Recently while preparing a dinner of *littorea* various members of the family had obtained from Shinnecock Bay, from Long Island Sound, and from a Brooklyn market, I was much surprised to find that small specimens of *Acmaea testudinalis* were using *Littorinas* as their home. This came to me as a surprise as I had always collected *Acmaea* previously living on rocks around Long Island. This rock location for finding *Acmaea* also seems to be the only one noted by collectors in general and also in books dealing with our local shells. It is unfortunate that I did not notice on which lot of *Littorina littorea* used in the cooking that the Acmaea were on.

DEFINITIONS: Scotch bonnet -- a tam o' shanter.
Scotch Bonnet -- *Phalium granulatum* Born, the official shell of the State of North Carolina.

THE KATSARAS AUCTION

Approximately seventy-five eager bidders attended Nick Katsaras' annual auction on September 18th. Among the rare shells (that sold for bargain prices) were fine specimens of the newly described Voluta guttata, benthalis, grossi mcmichaeli, all from Queensland. Another bargain was Lyria lyraeformis from off the Kenya coast. There was a considerable amount of spirited bidding for Conus clarus, a pure white cone from Western Australia; for Conus urashimanus, a lavender beauty from Taiwan. All of the above mentioned shells were, we believe, "First Timers" at any auction!

In addition to specimen shells, there were several lots, including a large one, of juvenile Conus. The large lot held 36 pairs of juvenile Conus, mostly from the Philippines.

An unusual item was submitted by Mrs. Alice Barlow -- It was a decorative piece over 100 years old, a wide oval frame encrusted with shells (there must have been 500 shells) arranged in pattern somewhat like a sailor's valentine.

Because of rumors and discussion about the future of the auctions, Nick tells us, "This is not the last auction, but it may be the penultimate. It gets difficult to obtain rare shells to make each auction surpass the last one. . . Perhaps we'll take a sabbatical after next year."

W. E. Old

JAMES W. DONOVAN

Our sincere sympathy is extended to the family of James W. Donovan of West Palm Beach, Florida, who died on September 17th.

His death will be deeply felt also by his many friends in the conchological world, both amateur and professional.

SNAIL'S ENERGY

SCIENCE MARCHES ON: Scientists at M. I. T. have discovered, while working with a group of Puerto Rican snails, that one of the creatures generates one 25-millionth of a horsepower in maintaining its well-known pace.

N. Y. Times Magazine, 4-11-65

THE EDITOR'S MINUTE

Getting out a paper is no picnic. If we print jokes, people say we're silly. If we don't, they say we're too serious. If we use stories from other publications, we're too lazy to write them ourselves. If we don't, we're stuck with our own stuff. If we make changes in the other fellow's write-up, we're too critical. If we don't, we're blamed for poor editing. Now, like as not, some guy will say we swiped this from another sheet. Truth to tell, we did!

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NEW YORK SHELL CLUB NOTES No. 125 October 1966 Page 1

The NEW YORK SHELL CLUB meets on the 2nd Sunday of each month, September through June, in ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, NOVEMBER 13th, 1966, at 2:00 P. M.

PROGRAM: GLIMPSES OF THE GREAT BARRIER REEF by William E. Old, with color slides by Mrs. Gardner Stout.

OUTDOOR AND CONSERVATION EDUCATION by C. A. Lewis, Jr., Director of Outdoor Education Projects, Town of North Hempstead, Long Island.

SNAILS I HAVE KNOWN by Dorothy and Norman Jensen, with color slides and taped accompaniment.

SHIPWORMS AND PIDDOCKS -- ARE THEY REALLY "BORING"?

Dr. Ruth D. Turner of the Museum of Comparative Zoology, Cambridge, Mass. was our guest speaker October 9th and demonstrated that these mollusks are really absorbing. Under the auspices of the United States Navy, she has been studying the family Teredinidae, the boring mollusks that damage immersed wood, and the closely related Pholadidae. The Navy's interest stems from an annual bill of $150,000,000 for repairs to docks, pilings, etc. Dr. Turner is studying the anatomy and life cycles of the borers, conducting the most exhaustive research yet attempted into possible means of controlling them. She has learned that while Teredinidae do not appear interesting from the outside, the insides are extremely interesting. In studying fresh and properly preserved specimens, she has discovered that much previous research, especially that based on dried specimens, has resulted in errors of taxonomy. Over 30 genera and 300 species have been named, but there are not that many. As an example, there are 45 synonyms for one species, arising from study of dried pallets -- the chitinous posterior structures that serve to close and seal the burrow against adverse conditions.

The various species show tremendous anatomical differences, many of which are not yet understood. Some internal structures suggest that the shipworm uses wood for food, while others indicate that it does not. All the species are filter feeders. An apparently significant discovery by Dr. Turner is that the shipworm can move about only during its free-swimming or larval stage. Also, the pallet-seal is a bar to control, enabling the animal to survive for six weeks in fresh water.

There is an insight into the pace of progress toward understanding and controlling this expensively destructive family in the fact that Deshayes, working in the 1800's, made anatomical drawings of teredo species which Dr. Turner praised for their beauty and intricacy. The ensuing century seems to have produced knowledge and error in comparable, and small, amounts. Many of the slides that illustrated Dr. Turner's talk were beautiful anatomical drawings made by herself.

Of the wood-boring species of Pholadidae, she said that they live at depths where they encounter only waste wood, and possibly do some good by reducing it. They do not use it for food. They have been found at depths of two miles. The genus Xylophaga has shown apparent readiness and ableness to compete against scientific advancement, by boring part-way through cable sheathing of the hardest of plastics.

. . Milton Werner, Jr.

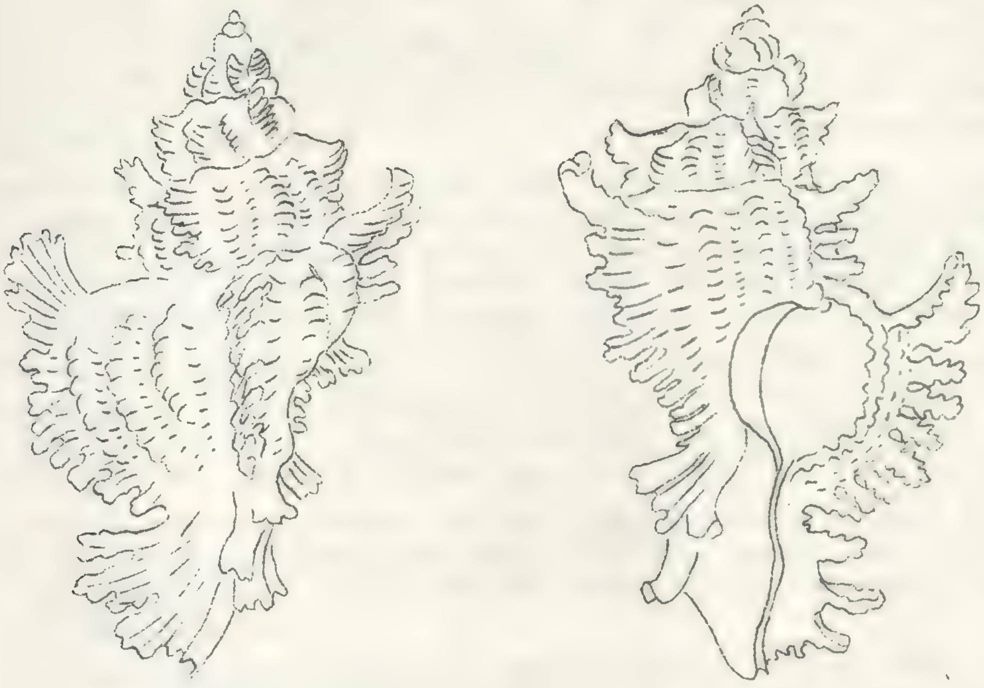
A NOTE ON THE DISTRIBUTION OF MUREX BANKSI Sowerby

by Anthony D'Attilio

Although Murex banksi has been known in the literature for well over a hundred years, little knowledge has since been added, especially concerning its distribution. The species was named and figured by Sowerby in the Conchological Illustrations 1834 and its locality was indicated as the Moluccas. This locality was repeated without further comment by Kiener, Reeve, Sowerby (Thesaurus), Küster and Kobelt, and Tryon in their respective monographs on the Muricidae. However, in a paper on the mollusks of the Red Sea, "Die Muriciden des Rothen Meeres", 1876, p. 42, Kobelt cites this species as occurring in that sea. A few years later Poirier, in "Revision des Murex", 1882, p. 47, cites bancksii (sic), Gulf of Persia (Von Martens).

Judging by the number of specimens accessible to collecting in shallow water on the east coast of Africa, this area seems to be the metropolis for banksi. Numerous specimens have been examined both from Portuguese East Africa and Zanzibar. The species elsewhere, though perhaps not common, is known to occur in the Sulu Sea. Specimens have also been collected in the Abrolhos Islands off the west coast of Australia. All records would seem to indicate an Indian Ocean distribution for this species.

The white aperture, rather long siphonal canal and the distinctive character of the spines are a few of the characters notable for banksi. This would appear to be a valid species among those of close relationship in the torrefactus group of the Chicoridae (S. L.).



Chicoreus (Torvamurex) banksi (Sowerby)

SEPTEMBER SHELLING FINDS -- CHAETOPLEURA AND BUSYCON

September 10th was clear and mild, with a 2:00 PM tide of 0.5 at Little Peconic Bay where we were guests at a private beach near Southold, Long Island. The water in the cove was calm and fairly clear. We've invariably searched out a few Busycon carica here, but this day was exceptional! The carica were in, in numbers! As the tide receded more and more of the whelks were to be seen crawling on the sandy bottom of the flats. They ranged from three to seven inches and some were feeding on Mya arenaria. A good many were more or less plastered with slipper shells, the common Crepidula fornicata; on and in dead shells Crepidula were often so thick that the base shell was obscured, even in crab specimens. Of all the Busycon we saw, we recall only one live canaliculatum (a fine specimen).

Dorothy Jensen picked up the largest live carica, which had a generous scattering of the Crepidula, then suddenly realized that among the Crepidula were three specimens of our rather scarce chiton, Chaetopleura apiculata Say, their sizes approximately 15, 17 and 20 mm. Thereafter we inspected each Busycon that came to hand, but found no more carrying chitons. After some discussion we tentatively decided that the three Chaetopleura could have been hitch-hikers -- as this was a sandy, and sandy-muddy area with an occasional spot of grey clay, no substrate to support an algae growth for a colony of chitons.

We covered a wide area wading and found the bottom the same over the flats within the cove, but our snorkeler (Neal Seamon) reported a grassy area, apparently with some rocks, about 150 yards offshore. I waded across the flats to the grassy point of land enclosing the far side of the cove, in hopes of finding it a rocky area. On the way I grasped each clump of seaweed (Fucus and Codium) to examine the holdfasts. Each holdfast was either an old shell or a smooth stone; the undersides of all were completely covered with Crepidula fornicata. No chitons. One sweep of my rake at a small clump of seaweed brought up, in addition, a large, worn, dead slipper shell. It was white and utterly barren of algae, but there was a Chaetopleura clinging to it -- a nice clean specimen measuring 22mm!

The sandy shore of the grassy point was lined with algae-covered pebbles and though innumerable stones were examined no more Chaetopleura were to be found that day. I collected some of the algae-covered pebbles (for the herbivores in the aquarium) and as soon as they went into the pail the chiton transferred from the barren slipper shell to the pebbles.

Circling back to our beach base, I realized that the only stones on the flats I crossed were those holdfasts above described; their weight was so balanced by the buoyancy of the seaweed that each mass would move with the tide. The only really pebbly areas were at the two "horns" of the cove.

Each of the three chitons found on the Busycon were daubed with "tar" that is still in evidence after a month in the aquarium. The daubs are confined to the plates, no plate being completely covered, and do not seem to affect the animals.

There are now five Chaetopleura in the aquarium, these four from Little Peconic joining the first specimen which was collected at Orient in June of 1965 and lent by Dorothy Germer. This first specimen is still doing well and has grown from 18 to 26 mm. The five specimens show an interesting range of color combinations in their striped girdles: Brown and tan, tan and beige, beige and grey, brown and beige, dark and light tan. The

shells also vary in tone -- from "ashen" in the palest specimen to a warm tan in the darkest. With five specimens, there is an excellent possibility that both sexes are represented. If such becomes evident we'll let you know.

Among other mollusks seen that day were some pretty, yellow-tinted, juvenile *Eupleura caudata*, some *Anomia simplex* which had attached themselves to pecten valves and were shaping themselves in the ribbed pattern of the pectens, juvenile *Laevicardium mortoni*, *Gemma gemma*, *Aequipecten irradians*, many small *Littorina saxatilis*, *Littorina littorea*, and many *Odostomia* on the clustered *Crepidula*. We noted the scarcity of *Urosalpinx cinerea* and *Nassarius obsoletus*; we found two live *Nassarius trivittatus*. There was an occasional *Venus mercenaria* -- one released by a *Busycon* had its valve edges chipped but not broken. Only two strings of *Busycon* egg capsules were found: (1) a most decrepit string of large empty capsules and (2) a short string of three small (½") freshly extruded but empty capsules at the aperture of a 6" *carica*.

(The *Odostomia* is an addition to the listing of species from this area as reported by Dorothy Jensen in her article "After the Downpour -- " in NOTES No. 97.)

. . . Dorothy Raeihle

(The following personal letter is shared with you by permission of the writer, Margaret C. Teskey, Secretary, American Malacological Union.)

Dear Dorothy:

Isn't it a fine thing to get together once each year! I wonder do other scientific groups have as much fun as do the AMU members at these annual affairs? Somehow I can't believe it.

One of the most encouraging things is the increasing recognition, or appreciation, if you will, of the work being done by the amateur -- who, spurred perhaps by being noticed, is doing increasingly better work. If this keeps up who is to know who is Chief, who Indian!

One of the first-time delegates commented, and has since repeated it in a letter, "Tell the people who give the papers never, never to talk down to the amateur in the audience. We who listen *have* to learn; we may not understand much of what we're hearing, but now and then an idea gets across and we learn without being aware of it. And keep the amateur presentations on as high a level as possible."

I feel much the same about shell club publications -- you know I see them all. Chatty local news is best reserved for the last page where it may be torn off if and when the paper is bound. And it is more likely to be bound if it contains material worth saving. Any sheet may be of real scientific value if it prints articles containing not just a list of what was collected and by whom, but under what conditions, what food was available, the time of year and the time of day and what else was there besides mollusks. Any intelligent observation honestly reported invests the paper in which it appears with scientific status. Sure, checklists are valuable, but when living colonies are found there should be more learned about them than the Latin name (or, heaven forbid, the common name) of the mollusk. Agree?

And now back to deciphering cold, cold notes on this fine September day..........

Yours sincerely,
Margaret

SHELL COLLECTING IN THE LIMESTONE CAVES OF BORNEO

by Mary Saul

In Sabah (North Borneo), limestone occurs in isolated outcrops, some forming hills and cliffs, others embedded in the mountain ranges. These outcrops are often widely separated and tend to develop individual species especially in the Families of tiny limestone-dwellers which include Opisthostoma and Hydrocena.

Most of the caves are difficult of access and some of them are estimated to house as many as a million of the small swifts whose nests, made from inspissated saliva, have for centuries been exported to China for the preparation of that expensive delicacy, "Birds' Nest Soup". These caves are communally owned by native groups occupying nearby villages. The collection and sale of the nests is strictly controlled and visitors are not allowed during the collecting seasons when the men must climb frail bamboo ladders and poles to reach the cave domes, sometimes several hundred feet high, from which the nests must be dislodged.

In most of these caves, as many bats as birds make their homes and at dusk the foraging bats and returning swifts fill the air for the "rush-hour" of their two-way traffic. Their accumulated droppings form rich deposits of guano, many feet thick, below the nesting-places and give off a very powerful stench. Guano is collected from some of the caves, such as those at Niah, in Sarawak where the sacks have only to be carried for about two-and-a-half miles over a track of logs laid over trestles through swamp-jungle to the river. But in most cases the caves are too remote to make guano-collecting a practicable occupation so it just goes on piling up.

The first caves I was able to visit were the well-known group at Gomantong on the East Coast of Sabah some twenty miles to the south of Sandakan. Gomantong is an isolated hill of limestone about half-a-mile long and 700 ft. high, with a sheer cliff-face, riddled from bottom to top with a vast complex of passages and caves. To reach it one must first make a ten-mile crossing of the Bay from Sandakan. This can be done in an hour or so by speedboat if the weather is favourable but is a rather chancy procedure because Sandakan Bay is like a small inland sea, a hundred square miles of water with an outlet less than a mile wide. The tide race, plus a tropical storm which can arrive unheralded from a clear blue sky, may make the return journey hazardous if not impossible. So it is desirable to take a sturdy launch if one wishes to be sure of returning on the same day.

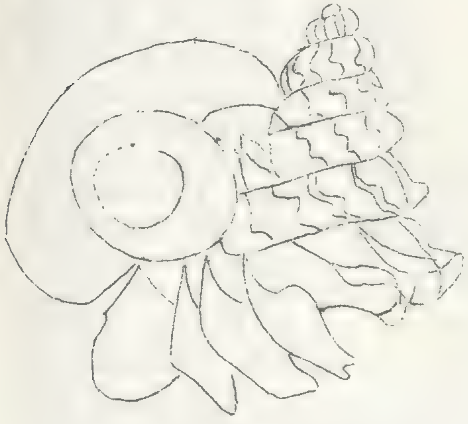
The landing place is a couple of miles up a small river and from there, until recently, one had to continue on foot for some eight miles to the Caves. This part of the trip is now much easier in dry weather as an earth road has been constructed and the Native Chief of the District has acquired a Land Rover which may be available provided the battery is not flat. The earth road winds through timber workings and virgin forest, crossed and re-crossed by the tracks of elephant who seem to like to congregate on the road-trace during the cool hours of the night. I was never early enough to catch a glimpse of them though their footprints might still hold water not yet dried out by the sun.

At the end of the track is the wooden shack which is the warehouse and temporary sleeping quarters of the nest collectors, raised on piles and thatched with palm leaf. It is not advisable to sit anywhere except on

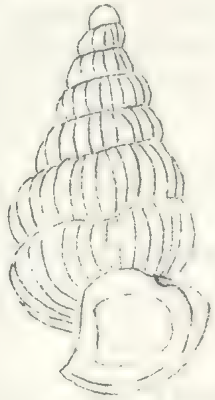
the ladder-steps because the whole place is hopping with the fleas which inhabit the nests and are inevitably carried in with them.

Behind rises the sheer face of the cliff, silvery limestone gleaming through its veil of forest trees and creepers. The largest cave is at the bottom, only half-a-mile along a damp and narrow path where leeches lie in wait, as I discovered to my cost the first time I went through and had to pull off no less than twenty-seven of them (all but one before they had got a good hold!).

This cave is Simud Hitam, which means "Black Mouth" and higher up is a series of caves called Simud Puteh, "White Mouth". The names are believed to refer to the different types of swifts which nest exclusively in one or the other. Among the stones and rubble on the sloping floor of Simud Hitam, wherever chimneys or vents let in some daylight, were many landshells, particularly species of Pterocyclus and Alycaeus which appeared in large numbers, but it was on the path up to Simud Puteh that I first saw a live Opisthostoma mirabilis -- that truly fabulous tiny mollusc whose shell must surely be the most fantastically elaborated of all. I had sat down on one of the rocks which form this steep and slippery track, to catch my breath for a moment, and there he was, clinging to the moist underside of a boulder right beside me. Compared with the physical pleasures of marine collecting, this chasing of land shells is certainly "doing it the hard way", but from that very moment I was resigned. Opisthostoma hailei was also found at Gomantong, but dead specimens only; live ones we found later, in quite another district.



Opisthostoma (Geothauma) mirabile
E. A. Smith 1893



Diplommatina gomantonensis
E. A. Smith 1894

The next cave, first visited in 1963, was a much smaller one only a few miles by road from Lahad Datu on Darvel Bay (also on the East Coast of Sabah). It is entered by a sort of "hole in the ground" only a few yards from the roadside and is particularly interesting because it has been recently "re-discovered" while secondary jungle was being cleared for the planting of oil-palm. I say "re-discovered" because the relics of ancient "boat burials" prove that it was known to the local people of long ago. Here we were able to spend more time and there were more eyes for the search, for my husband was there, also our two children who were out from school in England for their summer holiday with us and not at all pleased to be dragged away from the marvelous islands and reefs

and the Pearl-Culture station on the Bohaydulong lagoon, where we had been staying.

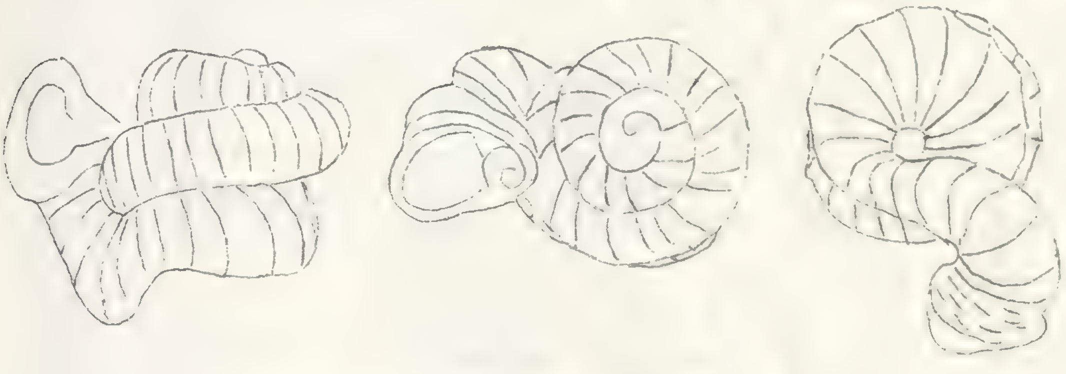
Collecting such tiny shells (1 to 3 mm) alive is not an easy task. The light is dim and often flickering with the movement of leaves; the rocks are damp and slippery and one has to cling to the ledges and crevices while holding both a collecting vial and a Chinese paintbrush, which we have found to be much the best implement for dislodging the delicate creatures without damage. (The Chinese brush, set in a bamboo holder, is very finely pointed and flexible, yet much firmer than the "western" type.)

Most Opisthostoma species, and all the Hydrocena species we have found, were living on the rock faces in places where there was some shade, some daylight, moisture seeping down consistently and small moss-like plants and lichens growing. At the Lahad Datu Cave we found Opisthostoma crespigny, Hydrocena williamsi and a new species H. scalinella (van Benthem Jutting 1965, Journal of Conchology 26:39-41).

Mid '64 we moved to the Interior Residency, to Keningau, and although it was frustrating not to be allowed, due to "Confrontation", to visit caves near the Indonesian border, it was possible to make two expeditions to a limestone outcrop which is embedded in the Crocker Range mountains to the west of Keningau Plain.

From Keningau there is an earth road to the North which goes for fourteen miles as straight as a die across the Plain -- the only straight road I know of anywhere in this mountainous land. At the ninth mile one takes a rough track to the west and can drive by truck or Jeep to the foothills of the mountains. At the end of the track a narrow footpath winds steeply upward through the forest, skirting the shoulders of the ridges. Local men bound up and down like chamoix but I am content to negotiate the steepest bits on all fours, thankful that, on a forest track, there is always something to cling onto -- a root, a branch, a jutting piece of rock -- and that sheer drops on either hand are mercifully screened by the thickness of the vegetation. After some two-and-a half miles of this, one quite suddenly rounds a huge sandstone boulder and plunges straight into a deep gorge of limestone. The caves are only a short way down and as we stopped right there we never did discover just how far the limestone extends.

In these caves we found Opisthostoma hailei Solem, the first live-collected specimens I believe. It was interesting to note that this spe-



Opisthostoma (Opisthostoma) hailei Solem

cies, unlike the other *Opisthostoma*, does not appear to live on the rock faces, but were found on damp leaves, twigs and debris in the crevices of the rocks. Among the debris were also many tiny *Diplomatina gomantonensis*. On the rock was another new species of *Hydrocena*, *H. saulae* (van Benthem Jutting 1965, Journal of Conchology 26: 39-41).

In June of this year, while working in the Sarawak Museum, I was able to make a short trip to a range of limestone hills and visit a cave at Janbusan near Bau some twenty miles from Kuching. Several members of the Museum staff accompanied me and in less than two hours we collected twenty-five species including *Opisthostoma everetti*, *O. austeni*, *O. busauense* and a species of *Hydrocena* which is not yet identified. We were lucky to be able to visit this area which is near the Indonesian border and has been restricted until recently.

Below I append a list of some of the species found in the areas described. For these identifications I am mainly indebted to Mrs. W. S. S. van Benthem Jutting, to whom my most grateful thanks.

Capital letters following names indicate the localities:

G - Gomantong (Sabah)
L - Lahad Datu (Sabah)
K - Keningau (Sabah)
B - Bau (Sarawak)

Alycaeus congener (Smith) B
" fultoni (Mollf.) G
" fultoni var. degenerens (Fulton) G . K
" globosus (Ads.) B
" cf. rechilansis (Austen) L
Amphidromus martensi (Bttgr.) G . L
Bradybaena similaris (Ferussac) L
Chamalycaeus everetti (God. Aust.) G
Chloritis kinabalensis (Kobelt) L
Coneuplecta microconus (Mouss) G . K . B
Cyclophorus cf. metcalf (Issel) G
" perdix borneensis (Metc.) B
Diplomatina gomantonensis (Smith) K
Dyakia hugonis (Pfr.) L
" regalis (Benson) B
Eurybasis alexis (Smith) K
" whiteheadi (Smith) G . L
Gastroptychia adversa (H. & A. Adams) B
Helicarion rugosus (Fulton) K
Helicina martensi (Issel) G
Hemiplecta densa (Ads.) B
" humphreysiana (Lea) G
" schumacheriana (Pfr.) G . K . L
Huttonella bicolor (Hutton) K
Hydrocena saulae (van Benthem Jutting) K
" scalinella " " " L
" williamsi (God. Aust.) L
Lagocheilus barbatum (Pfr.) B
" conicus (Smith) K
" jucundus (Smith) L

(Continued:)

G - Gomantong (Sabah)
L - Lahad Datu (Sabah)
K - Keningau (Sabah)
B - Bau (Sarawak)

Lagocheilus keppeli (God. Aust.) G
Lamellaxis clavulinus (Pot. & Mich.)
" gracilis (Hutton) B
Landouris cf. winteriana (Pfr.) G
Leptopoma nitidum (Sow.) G . L
" sericatum (Pfr.) L
" signatum (Pfr.) L
" cf. undatum (Met.) G . L
Liardetia angulata (Issel) G
" busauensis (Smith) K
" indifferens (Bttgr.) G
" moluensis (Smith K
Microcystina gratilla (van Benthem Jutting) K
Opisthoporus biciliatus (Mouss.) B
" iris (Aust.) L . K . B
" rostellatus (Pfr.) B
Opisthostoma austeni (Smith) B
" busauense (Smith) B
" crespigny (Ads.) L
" everetti (Smith) B
" hailei (Solem) K
" mirabilis (Smith) G
Paludromus latens (Ads.) L
Philalanka carinigera (Tap. Can.) G . K
Pupina cf. artata (Benson) G . L
Pupisoma orcula (Benson) K
Pterocyclus brevis (Mont) G
" latilabrum (Smith) G . L . K
Rhinocolchis nasuta (Met.) B
Subulina octona (Brug.) G . L
Sulfurina martensi (Issel) K
Trochomorpha bicolor (Mts.) L
" crassicarinata (Fulton) G . L
" frogatti (Iredale) K . B
" planorbis (Less.) G . L
Xestina belangeri (Desh.) L . K

30th August, 1966.

(The sketches illustrating the above article are from the figures of the designated shells as they appear on pages 14 and 20 of the SABAH SOCIETY JOURNAL Vol. II, May 1964, No. 1-2; "A Collection of non-marine mollusks from Sabah" by Alan Solem.)

IRVING PODELL

It is with sorrow that we report the loss of our friend and member Irving Podell, who succumbed to a heart ailment on October 9th.

Our deepest sympathy is extended to his family and associates.

NYSC NOTES NUMBER 126 NOVEMBER 1966

NEW YORK SHELL CLUB INC.

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The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SUNDAY, DECEMBER 11th, 1966

PROGRAM: LISTEN TO THE SHELLS by William Antonowitz

COLLECTING AT OLD PROVIDENCE ISLAND, COLUMBIA, S. A.
by Sid R. Anderson (with color slides)

FLORIDA LIGUUS, or "HEINZ 52 VARIETIES"
by Harold Feinberg

PEDRO de MESA

The many friends of Pedro de Mesa join in sending condolences to his wife and family. Mr. de Mesa was well known and well liked in conchological circles as far back as the 1920's. Many shells bear his name -- such as Camaena oomorpha demesana Maxwell Smith ("Nautilus" 1932) and Helicostyla cincinniformis mesana Clench. It was on October 31st that this word was received:

"I am so sorry to inform you that my husband, Mr. Pedro de Mesa, died last October 17, at 2:00 A. M., at the University of the East Ramon Magsaysay Memorial Hospital after being confined for more than a month..
Respectfully yours, Carmen de Mesa."

* * *

Many years ago, during the World War II years, it was the late William Weeks who first told me of Pedro de Mesa. When peace came, and as soon as overseas mail was permitted to the Philippines, I wrote to Mr. de Mesa and this was for me the start of a long correspondence and friendship. In exchange for desired material I received many boxes of marine and land shells which were a constant source of delight and surprise to me. All throughout the years I found him to be sincere, completely honest, and in every sense a gentleman.

Although bothered by failing eyesight and the infirmities of old age he yet continued to have a keen interest in mollusks. Several years ago he accompanied the Norton-Dayrit expedition which spent some months in areas of the southern Philippines collecting by diving and trawling. He wrote that this opportunity had been the most wonderful tonic for an old man who had devoted the days of his youth to the field-collecting of mollusks.

. . Anthony D'Attilio

* * *

It was this early devotion to mollusks that put Mr. de Mesa in contact with Dr. Kuroda of Japan and, among others in this country, Dr. Bartsch and Dr. Clench. It was the respect of the Japanese malacologists as expressed in a letter to him which, when shown to occupying authorities, was a life-saving instrument. In a letter dated Oct. 16, 1957, he refers to the harassment of those years: "It is not only my life that was saved by the shells but also the lives of 19 guerilla members in Lubang, Lubang Mayor, and others. The 19 guerillas were tied to the coconuts and papaya trees for seven days and nights without food and water and were exposed to sun and rain. Finally after playing my last card" (the letter) "and with the mystery of the two rare Japanese shells I was able to secure their pardon but on condition that my life and of my whole family would answer if any of the 19 would act as enemy of the occupation forces."

MUREX BARCLAYANUS, A RARE SPECIES

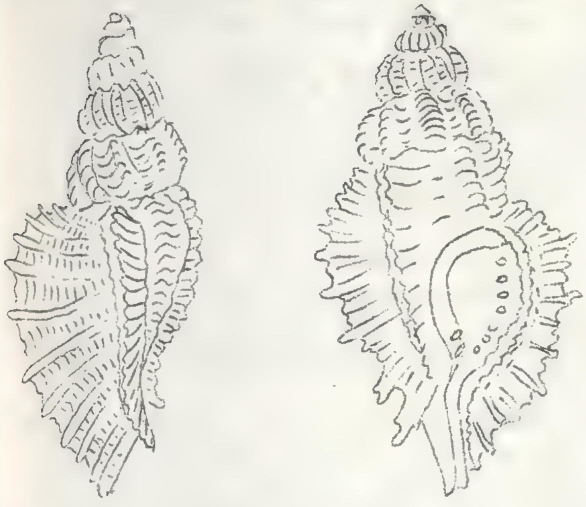
by Anthony D'Attilio

Originally described as *Coralliophila barclayana* H. Adams, 1873, Proc. Zoological Society, p. 205, pl. 23, fig. 1. Locality Mauritius.

In the volume on Muricidae of the Manual of Conchology, Tryon noted that H. Adams *Coralliophila barclayana* was wrongly assigned as to genus. The species has been little known until the last few years when some specimens have been discovered around Marinduque Island in the Philippines (ex Lumawig). Most recently the species has also turned up in the Solomon Islands (Atáa, Malaita, ex Van der Riet). A somewhat similar species of larger size has also been known from Japanese waters for some years but this may prove to be undescribed. Whereas *Murex barclayanus* may be found intertidally, the Japanese species is taken only in about twenty fathoms, living on the precious red coral found in Tosa Bay.

Based on the material studied, *Murex barclayanus* is over 30 mm. (1¼") in height with mostly four varices which are raised into low wing-like processes on the body whorl alone. The entire shell, when not eroded, is finely scabrous; it is colored a reddish brown; the aperture is violet; denticulations occur on the labrum as well as on the lower columella.

Generically this species belongs in a group that would also include *bipinnatus* Reeve, *pellucidus* Reeve, *tripterus* Born, and *elongatus* Solander. The generic Type of *Marchia* Jousseaume 1880 is *Murex clavus* Kiener (=*elongatus* Solander). This seems to be a valid group distinct from *Pterynotus*, the Type of which is *pinnatus* Swainson.



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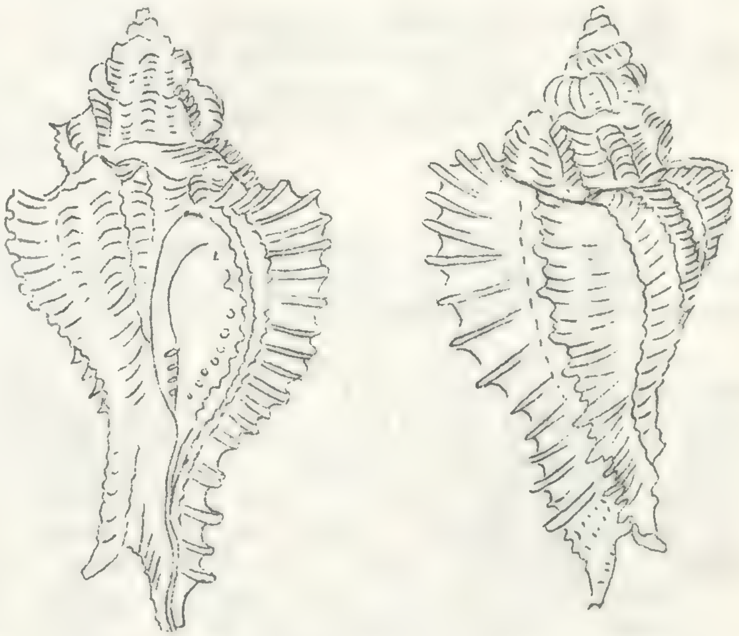
Marchia barclayana (H. Adams)



2X

Marchia species?

OFFSHORE KEY VACA WITH DREDGE AND SNORKEL

by Neal and Eva Seamon

On June 16th two displaced Hawaiians flew to Miami and then drove down 120 miles (about half this distance on the Overseas Highway) to Marathon, Florida. Our destination was the home of Dan and Elsie Malone who were to be our hosts for nine exciting shelling days. Our friendship with the Malones first began with correspondence while we were secretaries of the Hawaiian Malacological Society and developed on meeting them in their Shell Shop in Sanibel Island in November, 1965. At that time they invited us to visit them at their home in the Keys.

Through letters we learned when the shelling would be favorable and made plans accordingly for the third week in June to coincide with the low tides. Arriving there we found ideal conditions. The ocean was warm and calm, underwater visibility was good, and the tides were extremely low. If only the shells would cooperate we knew this would be a successful trip.

We were very fortunate in that our hosts were experienced shellers who have been in the Keys for 18 years. Dan is a lobster fisherman and has a thirty-foot boat with a small winch. Besides lifting the lobster traps, it can haul in a nice size shell dredge. Elsie specializes in Florida shells and favors the *Murex*. She has an extensive collection which includes many rare, deep water dredged shells. She recently returned from a dredging trip in the Gulf of Mexico where they dredged as deep as 100 fathoms. The Malones' daughter, also named Elsie, can be found tending the shop with her mother when they are in Sanibel, and skin diving for shells when they are in Marathon.

Our nine days there were spent skin diving, dredging, wading on flats, and collecting with glass buckets. Though we shelled daily in different locations we only touched the fringes of these areas. We kept a daily log of the areas shelled and of the most interesting shells collected. The following is taken from that log:

FIRST DAY (Map reference #1)
Location: SE end Molasses Key. Anchored in 4' water. Current at first about 9 knots subsiding to nil in one hour. Substrate of dead flat coral reef, with shallow sand pockets, covered with turtle grass and other algae.

Strombus gigas, from the roller stage to the thickened lip adult, was found around the entire key. We counted over 40. All were lying exposed on the reef and sand, apparently eating the thin growth of turtle grass. *Conus floridanus burryae* was lying exposed in a small sand pocket. This rarer form of *C. floridanus* is dark brown and has a lined pattern, strikingly different than the lighter colored common form. *Conus spurius atlanticus* was exposed on the reef and sand in 3 to 4 feet of water. *Conus jaspideus* was also found. A 75 mm. *Murex pomum* with yellow and dark brown aperture was on the reef in 3 feet. Two *Strombus raninus* were found though well camouflaged by the algae and other growths on their dorsum. Ten *Cypraea cinerea* were collected, most of them from inside dead adult queen conch shells. After we had found one this way and had thrown the shell back, we were instructed to look for its mate. We retrieved the shell, shook it, and out tumbled a *cinerea*! We found almost all of them in pairs. The fresh *cinerea* is very dark grey and has more color than those lying in collections -- they fade fast, like our *Cypraea sulcidentata*. The largest one we found was one inch.

There was a dead, but good, Murex florifer and a dead Tonna maculosa. Cyphoma gibbosum was commonly collected on the rough brown sea whip (Muricea muricata). A single specimen of the rarer Cyphoma signatum was also collected this way. It is difficult to describe the animal's beautiful mantle in contrast to the rough texture of the sea whip on which it clings. Vasum muricatum was in very shallow water (about 2'); Columbella mercatoria, the common dove shell, was under most dead coral and rocks. Chama macerophylla, attached to rocks, were smaller and less colorful than those taken on the outer reefs. Chlamys sentis under rocks and coral was uncommonly found. They were a brilliant red variety. Pinctada radiata was attached to rocks and sea whips. Astraea longispina and Astraea americana were abundantly found on the reef and sand. The longispina did not have the longer spines of those that were dredged in the following days.

SECOND DAY (Map reference #2)

Location: NE corner of Pigeon Key flat, Florida Bay side of Seven-mile Bridge. Anchored in 4' water. Flat partially exposed at first, later at dead low tide about 100 yds. high and dry. Bottom: silty sand, small coral heads, thick covering of turtle grass. Most of the group waded to the flat; others skin dived in the shallow water around the flat.

The first good find was a 17" horse conch, Pleuroploca gigantea, found on the flat. A 7" true tulip, Fasciolaria tulipa, was found in an old lobster trap with four lobsters which were not taken as the season was still closed. The best find of the day was a pair of Cymatium femorale. After Eva found the first in the center of the flat, high and dry, she was again instructed to look for its mate. She returned to the same area -- and within fifteen feet of the original find saw the second Cymatium. They were magnificent specimens, mature and quite large. More Strombus gigas were counted but not taken. The same Astraeas were plentiful.

As a large thunderhead seemed to be aiming at us, we curtailed our activities on this flat and headed out into the bay to area #2A. The following were dredged in about 14' of water:

Apolymetis intastriata
Arca zebra
Bulla occidentalis
Cerithium literatum
Cerithium algicola
Conus jaspideus
Conus spurius
Morum oniscus
Murex recurvirostris
Prunum apicinum
Prunum carneum
Prunum guttatum
Strombus raninus
Trivia pediculus
Turritella acropora

THIRD DAY (Map reference #3)

Location: South end of Sombrero Light Key, about 7 miles off shore, Atlantic Ocean. Depth from 5' diminishing as you dived towards the lighthouse which was high and dry. Large coral heads and rocks, fine sand in pockets. No current.

Cypraea spurca and Trivia pediculus was found under coral and rocks in the clear water. Two Cassis tuberosa were in sand pockets, partially buried in the sand. Large Astraea caelata were abundant in crevices and in sand pockets near the edge of coral and rocks. We found a large but dead rare Mitra florida and a large fragment of a freshly dead Conus granulatus. The miniature triton trumpet shell, Pisania pusio, was in crevices on the reef and under rocks. A large dead Cymatium femorale was on the exposed reef. Conus mus were under dead coral heads and rocks. Thais rustica and T. haemastoma were abundant on rocks on the exposed key. We found only dead Cyphoma. The area was once filled with magnificent

large staghorn corals but only their stumps remained. Hurricanes "Betsy" and "Cleo" were responsible for their destruction. The coral is slowly coming back, according to Dan. I saw over 15 large barracuda in this area. They were mainly in pairs, hovering from 15 to 20 feet from the divers. They at no time made any menacing gestures, despite our friend Jean Jacque's remark that he saw one apparently coming at him with wide open mouth. (The barracuda evidently wasn't interested in a French dish.) One large sand shark, about 5', cut through the area without noticing us.

FOURTH DAY (Map reference #4)

From shore we waded out at low tide onto the flats at the SE end of Bahia Honda Key. Bottom silty and covered with thick turtle grass.

About 25 yards from shore Strombus raninus, in all stages of growth, started showing up in numbers. They were all exposed and eating the turtle grass. The very immature shells superficially resemble Conus regius and we understand that new collectors mistake them for the cones. Conus spurius, C. jaspideus and C. stearnsi were found on the sand partially exposed by the tide. Very strikingly black-colored specimens of the tulip shells were found. Jewel boxes were in a metal container washed in by the tide. One large Vasum muricatum was found, quite open to view. A very beautiful carrier shell was found in a thick growth of turtle grass which all but hid the shell. The Xenophora conchyliophora had an amazing collection of Marginella, Cerithium, Conus and bivalve shells permanently attached to its shell. (Hint: Don't attempt to soak Xenophora in bleach for more than five minutes, as the attached shells will fall off. Clean the shell with a brush dipped in bleach, carefully stroking the individual shells.) The younger Elsie found her very first Cymatium femorale, a mature specimen. The entire group helped look for its mate, but this time it was "No luck".

FIFTH DAY (Map reference #5)

Molasses Key revisited, but on the west side of area #1. Bottom continues as in #1, but with more rocky areas and larger sand patches. Water was about 5' deep diminishing rapidly as you approached the exposed key. Here we again found Cyphoma, Strombus, Cypraea etc. as in area #1.

SIXTH DAY (Map reference #6)

Bahia Honda Key Flat revisited. Low tide late in afternoon. Same bottom and conditions as in 4th day. Species as in #4 except that we searched in vain for Cymatium femorale.

SEVENTH DAY (Map reference #7)

Location: Ocean side about 3 miles south of Book Key. Dredged for 15 minutes; nothing of interest came up. Anchored then at Little Sister Rock, about 200 yards off Marathon, in 6' of water. Bottom hard sand and small coral heads. Amazingly clear water. Thick turtle grass and heavy concentration of sea whips.

Cyphoma gibbosum was found on brown sea whips. Thick lipped, adult Strombus gigas were taken. An 8" horse conch was found eating an Astraea. We found one Lima scabra under a coral head.

EIGHTH DAY (Map reference #8)

Location: Florida Bay side of Seven-mile Bridge, about 2 to 3 miles north of Marathon. Depth about 14'. Here we dredged, bringing up the following species:

(Location #8, continued:)

Aequipecten nucleus
Bulla occidentalis
Cymatium cynocephalum
Cymatium femorale
Morum oniscus
Murex florifer
Murex recurvirostris
Prunum carneum
Prunum guttatum
Olivella jaspideus
Small Epitonium sp. ?
" Mitra sp. ?
" Murex sp. ?
" Turris sp. ?

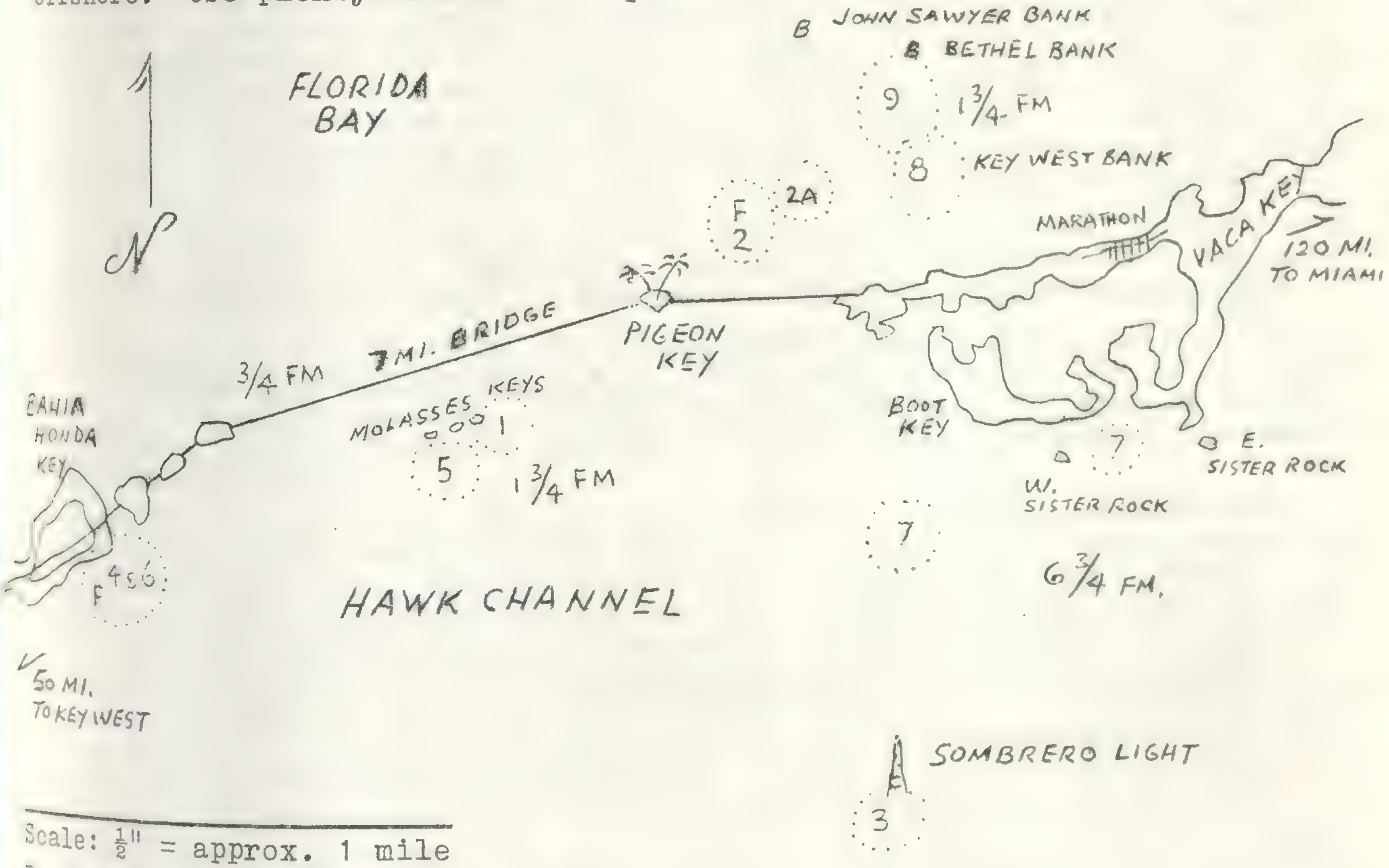
NINTH DAY (Map reference #9)

Location: North of position area #8. Dredged the following species, among others:

Columbella mercatoria -- all colors
Murex recurvirostris rubidus
Olivella jaspideus
Xenophora conchyliophora

We learned a lot about Florida shelling on this trip, and hope to go back in the near future. Our best finds were the Conus floridanus burryae, Cymatium femorale, Cyphoma signatum and mcgintyi, and the Cassis tuberosa. Diving with barracuda was at first disconcerting but at the end of the trip we hardly noticed them -- busy as we were, collecting.

Our advice to any collectors heading towards the keys: If you go in the summer, rent an air-conditioned car. Go during the early summer or early fall when the water is calm. This is important if you plan to go boating offshore. Use plenty of insect repellent.



Scale: ½" = approx. 1 mile
B = Bank F = Flat

(Adapted from Coast and Geodetic Survey Chart No. 3261.)

TO TELL THE TRUTH

One thing leads to another, and who knows where we will end up eventually? A Paterson (N. J.) newspaper wrote about a tour of my home, saying MUCH about my Art career, and the one word "SHELLS" caught the eye of another reporter who made a date and stayed three hours. A week later she arrived with a photographer and the result was a half-page feature titled, COLLECTOR JUST A SHELL OF HER FORMER SELF. A month later the "Bergen Record" carried a reprint.

The first article was printed June 3rd and by June 9th CBS called, asking if I would be on their TV program, TO TELL THE TRUTH, wherein four celebrity panelists try to determine which of three guests is truly the person each claims to be. They called back twice on the same day, wanting my age, measurements (?), where born etc. and did I have a tan? (!) On the 13th the two other guests and I went in for a three hour briefing. Much shell data and a whole page of questions and answers went with me. I had worked and typed all weekend. Have you ever tried to tell someone else ALL about shells in three hours?? CBS brought out the questions asked of Tucker Abbott when he was on the show and one was, "What is an olive?" This was lucky, as it turned out!

The show was taped the next day. We even had a dress rehearsal with a fake panel, to accustom us as to how to walk and where, how to sit, to watch for the light that blinked "SPEAK LOUDER" etc. The middle woman "blew" the rehearsal, saying that she couldn't make up lies!! From this point on the producer was with her every minute and we worried, too. The English girl said that I had spoken too assuredly and that I should TRY to be stupid (??) and SHE would TRY to be the smart one. I did and she did and the olive question was asked and the middle (worry-worry) woman answered so well she received a vote. Hurrah for Tucker and the olive!!

We could not figure out why Tom Poston voted for me and I'll never forget what Kitty Carlisle said: "She looks like the lady who would have carved and painted this beautiful shell". The shell being my wooden *gloriamaris*.

For some reason, Jim Briskas, Ft. Lauderdale dealer, put a price of $1,500 on this "*Conus gloriamaris woodblocki* Woodlock" -- he has a notion it will be worth THAT much some day! I told him that if he ever found a buyer I'd fly down pronto at my own expense -- but I hardly expect to be taking a hurried trip south!

However, it went out over the air to millions of people that the shell was worth that much, and fan mail started to come in. SO many people had a shell JUST like mine, AND for sale! Bill Old checked the letters. I replied to all, asking them to send photos. Only two came back: A lady of 83, who collected autographed baseballs, owned two shells -- a polished *Trochus niloticus* and a common *Mitra episcopalis* (not even a *Conus*). I had hopes for the one who collected in the New Guinea area but they turned out to be olives. She was 73 years old and had just published a book, HIDDEN GOLD IN THE GUADALUPE MOUNTAINS. I had hope of rooting our a real *gloriamaris* or even the stolen one -- but my dreams were for naught.

NOTHING in this world makes me nervous (except my organ teacher). But when we had to stand for SO long, through the commercial and introduction, my knees started to shake. After I was seated the shivers left. The next few minutes, after so much preparation, just flew. It was a backstage experience I won't forget! (We split $200 three ways. It was worth it!)

. . . Ethelyn Woodlock

NYSC NOTES NUMBER 127 DECEMBER 1966

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NEW YORK SHELL CLUB NOTES No. 127 December 1966 Page 1

The NEW YORK SHELL CLUB meets on the 2nd*Sunday of each month, September through June, in

ROOM 319, AMERICAN MUSEUM OF NATURAL HISTORY ⁑

NEXT MEETING:	SUNDAY, JANUARY 8th, 1967, at 2:00 P. M.
PROGRAM:	HOW TO READ A SYNONYMY by M. K. Jacobson AN OBSERVATION OF CAPTIVE MUREX CELLULOSUS Conrad by Dorothy Raeihle. (With color slides) REPRESENTATIVE SPECIES AND HABITATS OF OAHU, HAWAII by Neal Seamon. (With color slides)

OUR SCHEDULE of meetings for winter and spring of 1967 have two exceptions, so why not mark your new calendar now? Meeting dates will be:

January 8th
February 12th
March 12th
April 9th ⁑
May 7th *
June 11th

⁑ We plan a social afternoon with an auction of shells, followed by a buffet supper, to be held at the Broadway Dance Studio, Astoria, on April 9th.

* The May meeting will be held on the 1st Sunday of that month, May 7th, in order that it may not conflict with the observance of Mother's Day.

SHELL SHOW SCHEDULE

February 17 - 19, 1967	The Naples Shell Club will hold their annual Shell Show at the Woman's Club building, Park Street, Naples, Florida.
February 22 - 26, 1967	The Palm Beach County Shell Club announces these dates for the 8th International Shell Show, to be held in the All-States Room of the Lake Worth Casino, Lake Worth, Florida, on the beach at A1A.
February 26 - 28, 1967	The South Florida Shell Club will hold their Shell Show in the Museum of Science and Natural History, 3280 South Miami Ave., Miami, Florida.
March 2 - 4, 1967	Sanibel Island, Florida.
March 18-19, 1967	The Gulf Coast Shell Club of Beaumont, Texas, has voted to hold their Shell Show the weekend of March 18-19. Further information might be obtained from Club President Anna Mae Bishop, 1760 Wexford Drive, Vidor, Texas.
March ? - ?	The St. Petersburg, Florida, Shell Club usually holds their Shell Show in March. At this writing we have no information.

SHELL BAZAAR

On Sunday, January 15, 1967, from 10 A. M. to 4 P. M., the South Florida Shell Club and the Broward Shell Club will host a Shell Bazaar in the Sunrise Villas Community Room, 1077 Sunset Strip, Fort Lauderdale, Florida.

DO WE HAVE YOUR "ZIP" CODE?

The United States Post Office has announced that, effective Jan. 1, 1967, "zip" codes will be required on 3rd and 4th class mail. Please supply the needed information to Corresponding Secretary Grace McDougall if your address plate is incomplete or incorrect in any way.

THE WONDERFUL WORLD OF SEA SHELLS

A series of four articles by E. R. Cross of the Hawaiian Malacological Society is appearing in "Skin Diver" magazine. The first of the four parts appeared in the October, 1966 issue and we believe they were to run consecutively. The articles are, of course, designed primarily for the modern diver. Back issues of the magazine can probably be obtained from "Skin Divers Magazine", 59-59 Hollywood Blvd., Los Angeles, California 90028.

. . . Dorothy Jensen.

SHELLS ARE WHERE YOU FIND THEM!

Recently while reading "Drawings from New York Collections I - The Italian Renaissance" published by The Metropolitan Museum of Art, I cam across a description at p. 69 of plate 117 "Verona" by Paolo Farinato which reads in part as follows:

> "Signed at the lower right with the artist's device of a snail and dated A. D. MD/LVIII. .... This highly finished sheet, which is dated and bears at the lower right the snail that Farinato sometimes used as a signature on drawings as well as paintings .... "

An examination of the reproduction of the plate, the original of which is in the Pierpont Morgan Library, shows the snail quite distinctly to the rear of the right foot of the female representation of the City of Verona.

I tentatively identify the snail portrayed as "Farinato verona d'attilio".

. . . Mansfield C. Fuldner.

THE QUESTION BOX

Q. The "Hawaiian Shell News" of September, 1966 mentioned "the large number of Conus gloriamaris collected recently". Altogether, how many of these would you estimate have been found?

A. Van Nostrand's Catalog (1964) states that Conus gloriamaris is known from 30 specimens. As of October, 1966, Bill Old estimated that there were now about 70 known specimens and undoubtedly others that have not been publicized. That same month, a small specimen was for sale in a New York City shop. (It was soon sold!)

SHELL SHOP SHIFTED

Louise Travers phoned to tell us that the Chatham Shell Shop, Chatham, Mass., did NOT close -- it just moved to new quarters a few blocks away.

DUES DUE? No one likes to receive bills, and we don't like to send them. How about checking your membership card to make sure you are not in arrears?

BEACHES WHERE I HAVE GATHERED SHELLS

No. 4: MILDURA ON THE RIVER MURRAY IN VICTORIA

by Vilma Wicks

The River Murray has its beginnings in the Snowy Mountains in New South Wales; it gathers rivers and streams and proceeds to have a grand entrance in the Hume Weir at Albury, 636 feet above sea level and 1385 miles from the river mouth. The river flows eventually into Lake Alexandrina in South Australia and thence into the ocean.

The river was first sighted by the explorers Hume and Hovell on November 16, 1824, just downstream from the Hume Weir. Six years later Captain Sturt, with a few men, rowed a boat from the Murrumbidgee (one of the tributaries of the Murray) through unknown country to the sea and back again -- a distance of 1700 miles!

There are many stories to be told of the Murray River, and the river boats which served so well after tremendous efforts of pioneering, transporting wool and commodities from the people along the river. Now the boats are used mostly for pleasure-private and tourist.

The Snowy Mountain Scheme, which harnesses the great amount of waters and generates electricity, is a colossal story of peoples, their work and achievement. Much of the credit belongs to American engineers

Mildura was a barren and uninspiring land, a "Sahara", but with a mighty river some 20 feet deep flowing away to the sea. Then came the meeting of three men:

When the Hon. Alfred Deakin visited California in 1885 he was amazed at the productivity and beauty which had come from irrigation. There he met Canadian George Chaffey, engineer and irrigation specialist, and his brother William, horticulturist and authority on fruit growing. Alfred Deakin (who was to become Australia's second prime minister in 1903) influenced the Chaffey brothers with a dream of a similar irrigation project in Australia, and in 1887 George Chaffey selected the Mildura Run as the site of his great irrigation project. Today "Sunraysia", which takes in other towns near the city of Mildura, is producing and prospering, a land "flowing with milk and honey" with orange groves and vineyards providing good and happy living for all who turn the soil. The river is a great place for the fisherman, and for winter sunshine Mildura is the "Mecca" of the tourist.

The river presents its occasional beach of lovely golden sand and there are a few species of shells to be gathered, including the river mussel. On Lock Island, in the Murray at Mildura, I gathered three species -- *Platiopsis tatei*, *Gabbia australis* and Angas' little mussel, *Corbiculina angasi*. I looked without success for the large river mussel.

At Redcliff, a satellite town of Mildura, there is an area with broken valves of this shell on the headland of the river which flows some 40 or 50 feet below the red cliffs. I thought this might be an aboriginal midden as there were thousands of shells. My views were shared by one other, although he told me his colleagues of Mildura would not have it -- as the river used to flow along that bank and the shells were deposits. I very much doubt it because of the amount of shells in the one place.

A town called Berri in the irrigated area is 100 miles from Mildura and there I found embedded in the mud a shell which puzzled me. It was a

limpet having the appearance of Cellana tramoserica. A number of explanations come to mind including the possibility of its existance there in ancient times when the sea flowed through. There are salt deposits deep down under the soil.

Bird life is much in evidence -- both Australian and migratory birds. There is the white crested heron which migrates to the river from Siberia. To reach their destination they fly very high to escape their natural foes. I saw flocks of pelicans and ibis etc. Motoring from Melbourne, one sees many pink and grey galahs, also the pretty budgerigars, parrots of bright plumage, and the yellow crested white cockatoo.

On Lock Island, which came into being when the weir was built, are koala bears living in the red-gum trees. One can spend a delightful day strolling around the island. I made some of my notes while sitting on the trunk of a large river gum which had fallen near the water's edge. I even had a back rest and a second trunk for my feet. . . . The warm sun, the flowing river, golden sand. This little corner of the earth -- what more could one ask?

(Previous articles by Mrs. Wicks have appeared in NOTES No^{s} 94, 99, 105 and 112. Articles on land shelling in Australia by Mr. Frank Hausman appeared in NOTES No^{s} 52 and 55.)

MARGINELLAS -- GEMS OF THE OCEAN

A Presentation by Nick Katsaras.

In his presentation at our October meeting, Nick Katsaras called to our attention the beauty and interest of the Marginellidae. This family of usually quite small species (averaging perhaps 3/8") is generally passed over by collectors who more often vie with one another in their specialties of Conus, or Voluta, or Murex -- or other popular genus.

Nick had attempted to learn the number of species in the group, but found that publications vary -- Kiener listing 56, Reeve naming 159, Webb estimating 300, and Abbott ("Sea Shells of the World") stating that there are 100 known species. (You have your choice!)

The Marginella Nick discussed ranged from the tiny Gibberulina pyriformis of our western coast to the largest known species in the family, Prunum bullatum from Brazil. He exhibited a "giant" bullatum of over 3".

Marginellas range from the shallows to the very deep water. The Americas are rich in Marginellidae and many rarer species have recently been taken in dredgings to 850' in the Gulf of Mexico off Tampa Bay. Among the deep dredged species are Marginella haematita Kiener, denticulata opalina, and faunam. However, Nick thinks that West Africa must be even richer -- and with the most spectacular species. His example: the aptly named Marginella mosaica.

About 30 color slides indeed convinced us that the Marginellidae is an extremely interesting family. Small species? Yes. But as beautiful as jewels!

GOING SHELLING?

Whether you are having a winter vacation at an exotic beach or are a snowbound armchair collector -- SAVE THOSE GOOD EXTRAS FOR OUR AUCTION?

SHELLING AT GRAND CAYMAN, B. W. I.

by Ethelyn Woodlock

This year has been especially wonderful. Fabulous Sanibel for nearly six weeks where I picked up bushels of more-of-the-same to give away. Our own Bill Old was there, too. I introduced him to Vermont friends to prove that shells ARE found there. Caesar Camp found three Scaphella junonias one morning. Doris found a live one, and what a sight that spotted animal made crawling around in the pail! By the way, Bill DOES pick up shells -- he was seen in front of Casa Ybel with "those things" carried in a bath towel! He shipped home a carton of Dinocardium robustum vanhyningi -- these come up by the millions! Caesar has found four rare yellow ones and I saw three others found there this year.

The next month (March) to Grand Cayman. CARIBBEAN SEASHELLS states that any Museum would flip at a good set of shells from Grand Cayman. Bill did just that when he saw all of my Conus abbotti and took a dozen or so for the Museum. There are forty eight left out of how many? I wouldn't remember as I gave away so many. They were half way up 7-Mile Beach (West End) where the reef touches the shoreline. If I found all those beach specimens there must be a few thousand "out there"! Next year I plan to shell Little Cayman -- maybe they are there, too.

They call the Caymans "The islands that time forgot". Truly spoken but not for much longer. The building boom has started and land is at a premium. Cayman´, the accent is on the man and everyone speaks so softly with the end of every sentence going UP like a question. On the 22-mile island there are around 50 miles of roads (very few paved) and, as we drove over 300 miles, it means that we bumped the same bumps many times! We bumped all the way to East End as we were told that shells were there. NOTHING. Too windy (and dusty). Shells were NOT supposed to be on 7-Mile Beach -- but I found a spot and there I stayed for days, in the tide pools and all over the strange looking craters-of-the-moon coral. It was precarious walking, as I flew down with another broken toe (twice in one year is TOO much!).

Many Chondropoma caymanese, a tiny land shell discovered on and named for the island, are now in my collection. We visited Bob Fuller's wee shell museum, also Ira Thompson's. We were so interested in his oddities that when we left the island he came to the airport to say "Goodby". The "We" includes my Fort Lauderdale shelling pal and her skin-diver (pro) son, Dennise and Skip Norwood.

One rare Hemitoma ostheimerae, four of my favorite Arene cruentata (Dennise found four, too) and SO many lovely Prunum guttatum. The three Chlamys listed were out under the coral heads of the reef -- Skip brought in many of these. And on the way, the sand is covered with Tellina. WHAT a place to shell!!!

I lost five pounds! We didn't bother to eat much as we were so busy touring and shelling to bother to shop for food. This seems to be the way with shellers. Our cottage had a beautiful tiled bath but NO hot water, EVER! The discovery that shampoo will later in cold water, helped. ONE light in each room; in the living room we had to stand on the sofa to turn on the switch. We couldn't find a light in the kitchen and finally found the button behind the china closet in one end of the living room. EVERY DAY the electricity was turned off for a while -- it took us three days

to realize we had NO water pump trouble -- the pump was fine when it had "juice". The mosquitoes were very bad as soon as the sun went down, so we stayed IN, sorting and cleaning our shells by the light of one very far away bulb.

Next year I hope for no broken toe so I can snorkel . . . Those Conus abbotti MUST be out there some place!!

GRAND CAYMAN, B. W. I. March, 1966

Acmaea antillarum Sowerby
" jamaicensis Gmelin
" leucopleura Gmelin
" pustulata Helbling
" pulcherrima Guilding
Americardia media Linné
Anachis obesa C. B. Adams
Arene cruentata Mühlfeld
Aspella alabastrum Lamarck
Astraea americana Gmel.
" caelata Gmel.
" tecta Solander
Bailya parva C. B. Adams
Barbatia cancellaria Lam.
" candida Lam.
Bulla striata Bruguière
Bursa thomae Orbigny
Calliostoma jujubinum Gmel.
Capulus intortus Lam.
Cerithium eburneum Brug.
" litteratum Born
Chama congregata Conrad
" florida Lam.
macerophylla Gmel.
Charonia tritonis nobilis Conrad
Cheilea equestris L.
Chione cancellata L.
" pygmaea C. B. Adams
Chlamys imbricata Gmel.
" ornata Lam.
" sentis Reeve
Cittarium pica L.
Codakia orbicularis L.
Conus abbotti Clench
" jaspideus Gmel.
" mus Hwass
" regius Gmel.
" verrucosus Hwass
Coralliophila abbreviata Lam.
" caribaea Abbott
Crassispira fuscescens Reeve
Cymatium femorale L.
" labiosum Wood
" moritinctum Reeve
" muricinum Röding
" nicobaricum Röding
Cymatium pileare L.
" vespaceum Lam.
Cymatosyrinx moseri Dall
Cyphoma gibbosum L.
Cypraecassis testiculus L.
Cypraea cinerea Gmel.
spurca acicularis Gmel.
Diodora cayenensis Lam.
" dysoni Reeve
" jaumei Farfante
" listeri Orb.
" minuta Lam.
" viridula Lam.
Divaricella quadrisulcata Orb.
Drillia albinodata Reeve
Drupa nodulosa C. B. Adams
Echininus nodulosus Pfeiffer
Engina turbinella Kiener
Fissurella angusta Gmel.
" barbadensis Gmel.
" fascicularis Lam.
" nimbosa Lam.
" nodosa Born
" rosea Gmel.
Glycymeris decussata L.
Hemitoma octoradiata Gmel.
" ostheimerae Abbott
" emarginata Blainville
Hipponix subrufus subrufus Lam.
Hyalina avena Kiener
" tenuilabra Tomlin
Isognomen radiatus Anton
Laevicardium laevigatum L.
Leucozonia nassa Gmel.
Lima lima L.
" scabra Sowerby
" scabra tenera Sowerby
" pellucida C. B. Adams
Littorina ziczac Gmelin
Lucapina aegis Clench & Turner
" sowerbii Sowerby
" suffusa Reeve
Lucina blanda Dall & Simpson
" pensylvanica L.
Lyropecten antillarum Röding
Melampus monile Brug.

(Grand Cayman, March 1966. Continued:)

Mitra barbadensis Gmelin
" nodulosa Gmelin
Modiolus americanus Leach
Modulus modulus Linné
Morum oniscus Linné
Murex florifer Reeve
Muricopsis hexagona Lam.
Nassarius ambiguus Pultney
Natica floridana Rehder
" livida Pfeiffer
" menkeana Philippi
Nerita peloronta L.
" tessellata Gmel.
" versicolor Gmel.
Neritina piratica Russell
" virginea L.
Nitidella nitidula Sowerby
Odostomia laevigata Orb.
Olivella floralia Duclos
" nivea Gmel.
Persicula lavalleeana Orb.
Pisania pusio L.
Polinices lacteus Guilding
Prunum guttatum Dillwyn
Puperita pupa L.
" tristis Orb.
Purpura patula L.
Pyramidella dolabrata L.
Pyrene ovulata Lam.
Serpulorbis decussata Gmel.
Smaragdia viridis L.
Spondylus gussoni Da Costa
Strombus gigas L.
Tectarius muricatus L.
Tegula fasciata Born
Tellina radiata L.
" vitraea Orb.
Terebra hastata Gmel.
Thais deltoidea Lam.
" rustica Lam.
Tonna maculosa Dillwyn
Trachycardium muricatum L.
Trivia nix Schilder
" pediculus L.
" quadripunctata Gray
" suffusa Gmelin
Turbo castanea Gmelin

LAND SPECIES:

Chondropoma caymanese
" sp. (bright opaque orange)
Holispira cerion
Subulina octona Brug.
Trisoplita pallens Jacob

RETURN TO ST. JOHN

by Ethelyn Woodlock

Colorful St. John in the British West Indies was as beautiful as ever in May. I was there for the full moon low tides, so have a goodly number of Astraea caelata for exchange. The rocks at Dennis Bay (private) were crawling with live shells of so many types. These few new species were added to the check lists in NOTES No^{s} 95, 106 and 115, making a total of 251 species I have collected there -- plus six not yet identified.

Anachis obesa C. B. Adams
Arene cruentata Mühlfeld
Balcis intermedia Cantraine
Brachidontes citrinus Röding
Capulus intortus Lamarck
Chama florida Lamarck
Cymatosyrinx moseri Dall
Diodora araiata Sowerby
Hipponix subrufus subrufus Lam.
Natica menkeana Philippi
Ocenebra intermedia C. B. Adams
Olivella floralia Duclos
Tellina vitrea Orb.
Truncatella pulchella Pfeiffer
" pulchella bilabiata Pfr.

LAND SPECIES:

Bulimulus exilis

* * *

WE SEND YOU ALL BEST WISHES FOR THE COMING YEAR!

* * *

113

New York Shell Cl
Notes.
nos.98-127. 19

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